

Gene	Annotation
accA	Acetyl-coenzyme A carboxylase carboxyl transferase subunit alpha
accB	Biotin carboxyl carrier protein of acetyl-CoA carboxylase
accC	Biotin carboxylase
accD	Acetyl-coenzyme A carboxylase carboxyl transferase subunit beta
ackA	Acetate kinase
acoA	Acetoin:26-dichlorophenolindophenol oxidoreductase subunit alpha
acpA_1	Acyl carrier protein
acpA_2	Capsule synthesis positive regulator AcpA
acpB	Capsule synthesis positive regulator AcpB
acpP	Acyl carrier protein
acpS	Holo-[acyl-carrier-protein] synthase
acyP	Acylphosphatase
adcR	Transcriptional regulator AdcR
addA	ATP-dependent helicase/nuclease subunit A
adh_1	Alcohol dehydrogenase
adh_2	Alcohol dehydrogenase
adhA	Alcohol dehydrogenase 1
adhB	Alcohol dehydrogenase 2
adhE	Aldehyde-alcohol dehydrogenase
adhR	HTH-type transcriptional regulator AdhR
adk	Adenylate kinase
agaC	N-acetylgalactosamine permease IIC component 1
agaS	Putative tagatose-6-phosphate ketose/aldose isomerase
agaSK	Bifunctional alpha-galactosidase/sucrose kinase AgaSK
agrA_1	Accessory gene regulator A
agrA_2	Accessory gene regulator A
aguA	Agmatine deiminase
alaA	Glutamate-pyruvate aminotransferase AlaA
alaS	Alanine--tRNA ligase
albF	Putative zinc protease AlbF

ald_1	Alanine dehydrogenase
ald_2	Alanine dehydrogenase
aldC	Alpha-acetolactate decarboxylase
alr	Alanine racemase
alsT	Amino-acid carrier protein AlsT
amiA	Oligopeptide-binding protein AmiA
amyS	Alpha-amylase
amyX	Pullulanase
ansB	L-asparaginase 2
apbE	FAD:protein FMN transferase
apt	Adenine phosphoribosyltransferase
aqpZ2	Aquaporin Z 2
araD	L-ribulose-5-phosphate 4-epimerase AraD
araQ_1	L-arabinose transport system permease protein AraQ
araQ_2	L-arabinose transport system permease protein AraQ
araQ_3	L-arabinose transport system permease protein AraQ
araQ_4	L-arabinose transport system permease protein AraQ
araQ_5	L-arabinose transport system permease protein AraQ
arcA	Arginine deiminase
arcB	Ornithine carbamoyltransferase catabolic
arcC1	Carbamate kinase 1
argR_1	Arginine regulator
argR_3	Arginine regulator
argS	Arginine--tRNA ligase
arlR_1	Response regulator ArlR
arlR_2	Response regulator ArlR
arlS	Signal transduction histidine-protein kinase ArlS
arnB	UDP-4-amino-4-deoxy-L-arabinose--oxoglutarate aminotransferase
aroA	3-phosphoshikimate 1-carboxyvinyltransferase
aroB	3-dehydroquinate synthase
aroC	Chorismate synthase

aroD	3-dehydroquinate dehydratase
aroE	Shikimate dehydrogenase (NADP(+))
aroF	Phospho-2-dehydro-3-deoxyheptonate aldolase Tyr-sensitive
aroG	Phospho-2-dehydro-3-deoxyheptonate aldolase Phe-sensitive
aroL	Shikimate kinase 2
artM	Arginine transport ATP-binding protein ArtM
artP	Arginine-binding extracellular protein ArtP
artQ	Arginine transport system permease protein ArtQ
asd	Aspartate-semialdehyde dehydrogenase
asnA	Aspartate--ammonia ligase
asnS	Asparagine--tRNA ligase
asp2	Accessory Sec system protein Asp2
asp3	Accessory Sec system protein Asp3
aspS	Aspartate--tRNA ligase
atpA	ATP synthase subunit alpha
atpB	ATP synthase subunit a
atpC	ATP synthase epsilon chain
atpD	ATP synthase subunit beta
atpE_1	V-type proton ATPase subunit E
atpE_2	ATP synthase subunit c
atpF	ATP synthase subunit b
atpG	ATP synthase gamma chain
atpH	ATP synthase subunit delta
axe1-6A_1	Carbohydrate acetyl esterase/feruloyl esterase
axe1-6A_2	Carbohydrate acetyl esterase/feruloyl esterase
axeA	Cephalosporin-C deacetylase
bacC	Dihydroanticapsin 7-dehydrogenase
bbmA	Intracellular maltogenic amylase
bceA	Bacitracin export ATP-binding protein BceA
bceB	Bacitracin export permease protein BceB
bcrC	Undecaprenyl-diphosphatase BcrC

bepA	Beta-barrel assembly-enhancing protease
bfmBAB	2-oxoisovalerate dehydrogenase subunit beta
bga	Beta-galactosidase
bgIA	6-phospho-beta-glucosidase BgIA
bgIF	PTS system beta-glucoside-specific EIIBCA component
bgIH_1	Aryl-phospho-beta-D-glucosidase BgIH
bgIH_2	Aryl-phospho-beta-D-glucosidase BgIH
bgIK_1	Beta-glucoside kinase
bgIK_2	Beta-glucoside kinase
bgIK_3	Beta-glucoside kinase
bioY2	Biotin transporter BioY2
birA	Bifunctional ligase/repressor BirA
blaSE	Glutamyl endopeptidase
bmrA	Multidrug resistance ABC transporter ATP-binding/permease protein BmrA
braC	Leucine- isoleucine- valine- threonine- and alanine-binding protein
brnQ	Branched-chain amino acid transport system 2 carrier protein
brpA	Biofilm regulatory protein A
bsaA	Glutathione peroxidase BsaA
bshA	N-acetyl-alpha-D-glucosaminyl L-malate synthase
btrD	2'-N-acetylparomamine deacetylase
capA	Capsule biosynthesis protein CapA
carA	Carbamoyl-phosphate synthase small chain
carB	Carbamoyl-phosphate synthase large chain
catE	Catechol-2,3-dioxygenase
cbbZC	Phosphoglycolate phosphatase chromosomal
cca	CCA-adding enzyme
ccpA_1	Catabolite control protein A
ccpA_2	Catabolite control protein A
cdaA	Cyclic di-AMP synthase CdaA
cdaR	CdaA regulatory protein CdaR
cdd_1	Cytidine deaminase

cdd_2	Cytidine deaminase
cdhR	HTH-type transcriptional regulator CdhR
cdsA	Phosphatidate cytidylyltransferase
celA_1	PTS system cellobiose-specific EIIB component
celA_2	PTS system cellobiose-specific EIIB component
celA_3	PTS system cellobiose-specific EIIB component
celD	PTS system cellobiose-specific EIIA component
chrR	Chromate reductase
cinA	Putative competence-damage inducible protein
clcA	H(+)/Cl(-) exchange transporter ClcA
clpC_1	putative ATP-dependent Clp protease ATP-binding subunit
clpC_2	ATP-dependent Clp protease ATP-binding subunit ClpC
clpE	ATP-dependent Clp protease ATP-binding subunit ClpE
clpP	ATP-dependent Clp protease proteolytic subunit
clpX	ATP-dependent Clp protease ATP-binding subunit ClpX
cls	Cardiolipin synthase
cmk	Cytidylate kinase
cmpD	Bicarbonate transport ATP-binding protein CmpD
cmtB	Mannitol-specific cryptic phosphotransferase enzyme IIA component
coaA	Pantothenate kinase
coaBC_1	Coenzyme A biosynthesis bifunctional protein CoaBC
coaBC_2	Coenzyme A biosynthesis bifunctional protein CoaBC
coaD	Phosphopantetheine adenylyltransferase
coaE	Dephospho-CoA kinase
cobQ	Cobyric acid synthase
codY	GTP-sensing transcriptional pleiotropic repressor CodY
coiA	Competence protein CoiA
comC	Type 4 prepilin-like proteins leader peptide-processing enzyme
comC1	Competence-stimulating peptide type 1
comEA	ComE operon protein 1
comEC	ComE operon protein 3

comFA	ComF operon protein 1
comGA	ComG operon protein 1
copY	Transcriptional repressor CopY
corA	Magnesium transport protein CorA
corC	Magnesium and cobalt efflux protein CorC
cpoA	Alpha-galactosylglucosyldiacylglycerol synthase
cpsB	Tyrosine-protein phosphatase CpsB
cpsD	Tyrosine-protein kinase CpsD
crcB_1	Putative fluoride ion transporter CrcB
crcB_2	Putative fluoride ion transporter CrcB
csbB	Putative glycosyltransferase CsbB
cshA	ATP-dependent RNA helicase CshA
cshB	DEAD-box ATP-dependent RNA helicase CshB
ctpC	putative manganese/zinc-exporting P-type ATPase
ctpE	putative cation-transporting ATPase E
ctsR	Transcriptional regulator CtsR
cugP	UTP--glucose-1-phosphate uridylyltransferase
cutC	Choline trimethylamine-lyase
cvfB	Conserved virulence factor B
cysA	Sulfate/thiosulfate import ATP-binding protein CysA
cysB	HTH-type transcriptional regulator CysB
cysE	Serine acetyltransferase
cysK	Cysteine synthase
cysS	Cysteine--tRNA ligase
czcD	Cadmium cobalt and zinc/H(+)-K(+) antiporter
dacA	D-alanyl-D-alanine carboxypeptidase DacA
dapA	4-hydroxy-tetrahydrodipicolinate synthase
dapB	4-hydroxy-tetrahydrodipicolinate reductase
dapE	Succinyl-diaminopimelate desuccinylase
dapH	2345-tetrahydropyridine-26-dicarboxylate N-acetyltransferase
dasR	HTH-type transcriptional repressor DasR

ddl	D-alanine--D-alanine ligase
def_1	Peptide deformylase
def_2	Peptide deformylase
degA_1	HTH-type transcriptional regulator DegA
degA_2	HTH-type transcriptional regulator DegA
deoB	Phosphopentomutase
deoC	Deoxyribose-phosphate aldolase
deoD_1	Purine nucleoside phosphorylase DeoD-type
deoD_2	Purine nucleoside phosphorylase DeoD-type
der_1	GTPase Der
der_2	GTPase Der
desK	Sensor histidine kinase DesK
desR	Transcriptional regulatory protein DesR
dexB	Glucan 16-alpha-glucosidase
dgkA	Undecaprenol kinase
dhaM	PTS-dependent dihydroxyacetone kinase phosphotransferase subunit DhaM
dhfR	Dihydrofolate reductase
dinB	DNA polymerase IV
dinG	putative ATP-dependent helicase DinG
divIB	Cell division protein DivIB
divIVA	Cell division protein DivIVA
dltA	D-alanine--poly(phosphoribitol) ligase subunit 1
dltC	D-alanine--poly(phosphoribitol) ligase subunit 2
dnaA	Chromosomal replication initiator protein DnaA
dnaC	Replicative DNA helicase
dnaD_1	DNA replication protein DnaD
dnaD_2	DNA replication protein DnaD
dnaE	DNA polymerase III subunit alpha
dnaG	DNA primase
dnal	Primosomal protein Dnal
dnaJ	Chaperone protein DnaJ

dnaK	Chaperone protein DnaK
dnaN	DNA polymerase III subunit beta
dnaX_1	DNA polymerase III subunit tau
dnaX_2	DNA polymerase III subunit gamma/tau
dpnA	Modification methylase DpnIIB
dpnB	Type-2 restriction enzyme DpnII
dpnM	Modification methylase DpnIIA
dprA	DNA processing protein DprA
dps	DNA protection during starvation protein
dsbD_1	Thiol:disulfide interchange protein DsbD
dsbD_2	Thiol:disulfide interchange protein DsbD
dtd	D-aminoacyl-tRNA deacylase
dtxR	Diphtheria toxin repressor
dus	putative tRNA-dihydrouridine synthase
dut	Deoxyuridine 5'-triphosphate nucleotidohydrolase
dxs	1-deoxy-D-xylulose-5-phosphate synthase
ecfA1	Energy-coupling factor transporter ATP-binding protein EcfA1
ecfA2	Energy-coupling factor transporter ATP-binding protein EcfA2
ecfT_1	Energy-coupling factor transporter transmembrane protein EcfT
ecfT_2	Energy-coupling factor transporter transmembrane protein EcfT
ecfT_3	Energy-coupling factor transporter transmembrane protein EcfT
ecsA_1	ABC-type transporter ATP-binding protein EcsA
ecsA_2	ABC-type transporter ATP-binding protein EcsA
efp	Elongation factor P
endA	DNA-entry nuclease
engB	putative GTP-binding protein EngB
eno	Enolase
epiD	Epidermin decarboxylase
epsF	Putative glycosyltransferase EpsF
epsH_1	Putative glycosyltransferase EpsH
epsH_2	Putative glycosyltransferase EpsH

epsH_3	Putative glycosyltransferase EpsH
epsJ_1	putative glycosyltransferase EpsJ
epsJ_2	putative glycosyltransferase EpsJ
era	GTPase Era
ethR	HTH-type transcriptional regulator EthR
ettA	Energy-dependent translational throttle protein EttA
exoA	Exodeoxyribonuclease
ezrA	Septation ring formation regulator EzrA
fabD	Malonyl CoA-acyl carrier protein transacylase
fabF	3-oxoacyl-[acyl-carrier-protein] synthase 2
fabG	3-oxoacyl-[acyl-carrier-protein] reductase FabG
fabH	3-oxoacyl-[acyl-carrier-protein] synthase 3
fabM	Trans-2-decenoyl-[acyl-carrier-protein] isomerase
fabZ	3-hydroxyacyl-[acyl-carrier-protein] dehydratase FabZ
fba	Fructose-bisphosphate aldolase
fecE	Fe(3+) dicitrate transport ATP-binding protein FecE
femA	Aminoacyltransferase FemA
femX	Lipid II:glycine glycytransferase
fepD_1	Ferric enterobactin transport system permease protein FepD
fepD_2	Ferric enterobactin transport system permease protein FepD
feuB	Iron-uptake system permease protein FeuB
ffh	Signal recognition particle protein
fhs1	Formate--tetrahydrofolate ligase 1
fhuC	Iron(3+)-hydroxamate import ATP-binding protein FhuC
fieF	Ferrous-iron efflux pump FieF
fmt	Methionyl-tRNA formyltransferase
fni	Isopentenyl-diphosphate delta-isomerase
fold	Bifunctional protein FOLD protein
folE	GTP cyclohydrolase 1
fpgS_1	Folylpolyglutamate synthase
fpgS_2	Folylpolyglutamate synthase

frr	Ribosome-recycling factor
fruA	PTS system fructose-specific EIIABC component
fsaA	Fructose-6-phosphate aldolase 1
ftsA	Cell division protein FtsA
ftsE	Cell division ATP-binding protein FtsE
ftsH	ATP-dependent zinc metalloprotease FtsH
ftsK	DNA translocase FtsK
ftsL	Cell division protein FtsL
ftsW	putative peptidoglycan glycosyltransferase FtsW
ftsX	Cell division protein FtsX
ftsY	Signal recognition particle receptor FtsY
ftsZ	Cell division protein FtsZ
fucA	L-fuculose phosphate aldolase
fucl	L-fucose isomerase
fucU	L-fucose mutarotase
fus	Elongation factor G
gabR	HTH-type transcriptional regulatory protein GabR
galE	UDP-glucose 4-epimerase
galK_1	Galactokinase
galK_2	Galactokinase
galT	Galactose-1-phosphate uridylyltransferase
gap	Glyceraldehyde-3-phosphate dehydrogenase
gapN	NADP-dependent glyceraldehyde-3-phosphate dehydrogenase
gatA_1	Glutamyl-tRNA(Gln) amidotransferase subunit A
gatB	Aspartyl/glutamyl-tRNA(Asn/Gln) amidotransferase subunit B
gatC_1	Glutamyl-tRNA(Gln) amidotransferase subunit C
gatC_2	PTS system galactitol-specific EIIC component
gdh	NADP-specific glutamate dehydrogenase
gdpP	Cyclic-di-AMP phosphodiesterase GdpP
gla	Glycerol facilitator-aquaporin gla
glcA	Glucan endo-1,3-beta-glucosidase A1

glcK	Glucokinase
gldA	Glycerol dehydrogenase
glgA	Glycogen synthase
glgB	14-alpha-glucan branching enzyme GlgB
glgC	Glucose-1-phosphate adenyltransferase
glgD	Glycogen biosynthesis protein GlgD
glmM	Phosphoglucosamine mutase
glmS	Glutamine--fructose-6-phosphate aminotransferase [isomerizing]
glmU	Bifunctional protein GImU
glnA	Glutamine synthetase
glnH_1	ABC transporter glutamine-binding protein GlnH
glnH_2	Glutamine-binding periplasmic protein
glnM_1	putative glutamine ABC transporter permease protein GlnM
glnM_2	putative glutamine ABC transporter permease protein GlnM
glnP_1	putative glutamine ABC transporter permease protein GlnP
glnP_2	Glutamine transport system permease protein GlnP
glnQ_1	Glutamine transport ATP-binding protein GlnQ
glnQ_2	Glutamine transport ATP-binding protein GlnQ
glnQ_3	Glutamine transport ATP-binding protein GlnQ
glnQ_4	Glutamine transport ATP-binding protein GlnQ
glnQ_5	Glutamine transport ATP-binding protein GlnQ
glnR	HTH-type transcriptional regulator GlnR
gloA	Lactoylglutathione lyase
glpE_1	Thiosulfate sulfurtransferase GlpE
glpE_2	Thiosulfate sulfurtransferase GlpE
glpF	putative glycerol uptake facilitator protein
glpK	Glycerol kinase
glpO	Alpha-glycerophosphate oxidase
glpQ	Glycerophosphodiester phosphodiesterase
gltC	HTH-type transcriptional regulator GltC
gltX	Glutamate--tRNA ligase

gluP	Rhomboid protease GluP
glxK	Glycerate kinase
glyA	Serine hydroxymethyltransferase
glyQ	Glycine--tRNA ligase alpha subunit
glyS	Glycine--tRNA ligase beta subunit
gmk	Guanylate kinase
gmuA	PTS system oligo-beta-mannoside-specific EIIA component
gmuB	PTS system oligo-beta-mannoside-specific EIIB component
gmuD_1	6-phospho-beta-glucosidase GmuD
gmuD_2	6-phospho-beta-glucosidase GmuD
gmuE	Putative fructokinase
gmuR	HTH-type transcriptional regulator GmuR
gnd	6-phosphogluconate dehydrogenase decarboxylating
gno	Gluconate 5-dehydrogenase
gor	Glutathione reductase
gph_1	Phosphoglycolate phosphatase
gph_2	Phosphoglycolate phosphatase
gpmA_1	23-bisphosphoglycerate-dependent phosphoglycerate mutase
gpmA_2	23-bisphosphoglycerate-dependent phosphoglycerate mutase
gpsA	Glycerol-3-phosphate dehydrogenase [NAD(P)+]
gpsB	Cell cycle protein GpsB
graR	Response regulator protein GraR
graS	Sensor histidine kinase GraS
greA	Transcription elongation factor GreA
groL	60 kDa chaperonin
groS	10 kDa chaperonin
group_1001	hypothetical protein
group_1004	hypothetical protein
group_1014	hypothetical protein
group_1015	hypothetical protein
group_1016	hypothetical protein

group_1017 hypothetical protein
group_1018 hypothetical protein
group_1019 hypothetical protein
group_1022 hypothetical protein
group_1023 hypothetical protein
group_1025 hypothetical protein
group_1026 hypothetical protein
group_1027 hypothetical protein
group_1029 hypothetical protein
group_103 hypothetical protein
group_1031 Putative NrdI-like protein
group_1034 hypothetical protein
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group_1038 hypothetical protein
group_1040 hypothetical protein
group_1043 Putative two-component membrane permease complex subunit SMU_746c
group_1048 hypothetical protein
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group_1052 hypothetical protein
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group_1069 hypothetical protein
group_1073 Protein SprT-like protein
group_1080 hypothetical protein
group_1083 hypothetical protein
group_1084 hypothetical protein

group_1085 Cobalt-dependent inorganic pyrophosphatase
group_1086 hypothetical protein
group_1091 hypothetical protein
group_1092 putative ABC transporter ATP-binding protein
group_1093 hypothetical protein
group_1095 Flavodoxin
group_1101 hypothetical protein
group_1102 hypothetical protein
group_1104 hypothetical protein
group_1105 hypothetical protein
group_1106 hypothetical protein
group_1115 Putative universal stress protein
group_1117 hypothetical protein
group_1122 hypothetical protein
group_1123 hypothetical protein
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group_1131 hypothetical protein
group_1132 hypothetical protein
group_1138 hypothetical protein
group_1139 hypothetical protein
group_1141 hypothetical protein
group_1142 hypothetical protein
group_1147 hypothetical protein
group_1148 Putative TrmH family tRNA/rRNA methyltransferase
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group_1260 Purine nucleoside phosphoramidase
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group_1279 Putative O-methyltransferase
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group_1299 hypothetical protein
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group_1319 Putative NAD(P)H nitroreductase
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group_1436 Glycine/sarcosine N-methyltransferase
group_1437 hypothetical protein
group_1438 Arylsulfatase
group_1439 hypothetical protein
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group_1511 Putative two-component membrane permease complex subunit SMU_747c
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group_1588 Phosphomevalonate kinase
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group_1598 hypothetical protein
group_1600 hypothetical protein
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group_1610 putative AAA domain-containing protein
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group_1644 Aspartate aminotransferase
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group_1662 Acetyltransferase
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group_1737 Putative glutamine amidotransferase
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group_1807 hypothetical protein
group_1810 hypothetical protein
group_1812 hypothetical protein
group_1816 hypothetical protein
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group_1858 Oligosaccharide 4-alpha-D-glucosyltransferase
group_186 hypothetical protein
group_1861 hypothetical protein
group_1865 hypothetical protein
group_1871 hypothetical protein
group_1878 hypothetical protein
group_1879 hypothetical protein
group_1883 hypothetical protein
group_1886 hypothetical protein
group_1887 hypothetical protein
group_1888 hypothetical protein
group_1889 hypothetical protein
group_1890 hypothetical protein
group_1893 hypothetical protein
group_1897 hypothetical protein
group_1898 hypothetical protein
group_1900 hypothetical protein
group_1901 hypothetical protein
group_1904 hypothetical protein
group_1905 hypothetical protein
group_1908 Putative dipeptidase
group_1915 hypothetical protein
group_1918 Putative bifunctional phosphatase/peptidyl-prolyl cis-trans isomerase
group_1923 hypothetical protein
group_1926 hypothetical protein
group_1927 hypothetical protein
group_1928 hypothetical protein

group_1932 hypothetical protein
group_1934 hypothetical protein
group_1938 hypothetical protein
group_1943 hypothetical protein
group_1945 hypothetical protein
group_1946 hypothetical protein
group_1947 hypothetical protein
group_1950 hypothetical protein
group_1951 hypothetical protein
group_1953 Hyaluronate lyase
group_1956 hypothetical protein
group_1957 hypothetical protein
group_1963 hypothetical protein
group_1968 hypothetical protein
group_1971 hypothetical protein
group_1974 hypothetical protein
group_1976 hypothetical protein
group_1978 Alpha-monoglucosyldiacylglycerol synthase
group_1980 hypothetical protein
group_1981 hypothetical protein
group_1984 hypothetical protein
group_1987 hypothetical protein
group_1988 hypothetical protein
group_199 hypothetical protein
group_1991 hypothetical protein
group_1994 hypothetical protein
group_1996 hypothetical protein
group_2002 Sugar transporter SemiSWEET
group_2003 hypothetical protein
group_2004 hypothetical protein
group_2008 hypothetical protein

group_2011 hypothetical protein
group_2012 hypothetical protein
group_2013 hypothetical protein
group_2014 hypothetical protein
group_2016 hypothetical protein
group_2017 hypothetical protein
group_2023 hypothetical protein
group_2028 hypothetical protein
group_2030 hypothetical protein
group_2032 Putative zinc metalloprotease
group_2040 hypothetical protein
group_2045 hypothetical protein
group_2046 hypothetical protein
group_2049 hypothetical protein
group_2057 hypothetical protein
group_2061 hypothetical protein
group_2065 hypothetical protein
group_2066 hypothetical protein
group_2068 hypothetical protein
group_2069 hypothetical protein
group_2078 hypothetical protein
group_2085 hypothetical protein
group_209 hypothetical protein
group_2090 hypothetical protein
group_2091 hypothetical protein
group_2093 hypothetical protein
group_2094 hypothetical protein
group_2098 hypothetical protein
group_2099 hypothetical protein
group_2101 hypothetical protein
group_2102 DegV domain-containing protein

group_2106 hypothetical protein
group_2107 hypothetical protein
group_2110 hypothetical protein
group_2111 hypothetical protein
group_2112 hypothetical protein
group_2115 hypothetical protein
group_2121 hypothetical protein
group_2122 hypothetical protein
group_2132 hypothetical protein
group_2134 DegV domain-containing protein
group_2140 putative ABC transporter ATP-binding protein
group_2142 hypothetical protein
group_2144 hypothetical protein
group_2146 hypothetical protein
group_2147 hypothetical protein
group_2149 hypothetical protein
group_2155 hypothetical protein
group_2156 hypothetical protein
group_2158 hypothetical protein
group_2163 hypothetical protein
group_2164 hypothetical protein
group_2165 Putative bifunctional phosphatase/peptidyl-prolyl cis-trans isomerase
group_217 hypothetical protein
group_2171 hypothetical protein
group_2179 hypothetical protein
group_2181 hypothetical protein
group_2188 hypothetical protein
group_2189 hypothetical protein
group_2190 hypothetical protein
group_2192 Calcium-transporting ATPase 1
group_2193 hypothetical protein

group_2194 hypothetical protein
group_2201 hypothetical protein
group_2203 hypothetical protein
group_2218 hypothetical protein
group_2219 hypothetical protein
group_2222 hypothetical protein
group_2227 hypothetical protein
group_2235 hypothetical protein
group_2236 hypothetical protein
group_2240 hypothetical protein
group_228 hypothetical protein
group_234 hypothetical protein
group_237 hypothetical protein
group_244 hypothetical protein
group_246 hypothetical protein
group_247 hypothetical protein
group_249 PhoH-like protein
group_250 Pilin
group_251 hypothetical protein
group_253 hypothetical protein
group_257 hypothetical protein
group_258 hypothetical protein
group_261 hypothetical protein
group_264 hypothetical protein
group_334 hypothetical protein
group_337 hypothetical protein
group_341 hypothetical protein
group_344 hypothetical protein
group_345 hypothetical protein
group_348 hypothetical protein
group_352 hypothetical protein

group_353 hypothetical protein
group_355 putative NADH oxidase
group_359 hypothetical protein
group_360 hypothetical protein
group_366 hypothetical protein
group_367 hypothetical protein
group_371 hypothetical protein
group_372 hypothetical protein
group_374 hypothetical protein
group_375 hypothetical protein
group_378 hypothetical protein
group_380 hypothetical protein
group_381 hypothetical protein
group_382 hypothetical protein
group_383 hypothetical protein
group_384 hypothetical protein
group_386 Fatty acid-binding protein
group_388 hypothetical protein
group_391 hypothetical protein
group_395 hypothetical protein
group_396 hypothetical protein
group_397 hypothetical protein
group_398 hypothetical protein
group_402 hypothetical protein
group_406 hypothetical protein
group_410 hypothetical protein
group_414 hypothetical protein
group_416 hypothetical protein
group_418 putative ABC transporter ATP-binding protein
group_420 hypothetical protein
group_421 hypothetical protein

group_424 hypothetical protein
group_426 hypothetical protein
group_432 hypothetical protein
group_433 hypothetical protein
group_440 hypothetical protein
group_441 Putative protein phosphatase 2C-type
group_443 hypothetical protein
group_445 hypothetical protein
group_451 5'-nucleotidase
group_458 hypothetical protein
group_460 Ferredoxin--NADP reductase
group_461 hypothetical protein
group_462 hypothetical protein
group_463 hypothetical protein
group_473 hypothetical protein
group_474 hypothetical protein
group_477 hypothetical protein
group_480 hypothetical protein
group_481 hypothetical protein
group_482 hypothetical protein
group_483 hypothetical protein
group_487 hypothetical protein
group_490 hypothetical protein
group_493 hypothetical protein
group_496 hypothetical protein
group_497 hypothetical protein
group_499 hypothetical protein
group_503 hypothetical protein
group_506 hypothetical protein
group_515 hypothetical protein
group_517 hypothetical protein

group_520 hypothetical protein
group_521 hypothetical protein
group_523 Ferredoxin--NADP reductase
group_526 Putative membrane protein insertion efficiency factor
group_530 hypothetical protein
group_531 hypothetical protein
group_533 hypothetical protein
group_534 hypothetical protein
group_536 hypothetical protein
group_539 hypothetical protein
group_545 hypothetical protein
group_546 hypothetical protein
group_549 hypothetical protein
group_550 hypothetical protein
group_551 hypothetical protein
group_554 hypothetical protein
group_555 hypothetical protein
group_556 hypothetical protein
group_558 hypothetical protein
group_559 hypothetical protein
group_561 hypothetical protein
group_564 hypothetical protein
group_571 hypothetical protein
group_574 hypothetical protein
group_577 Putative glutamine amidotransferase
group_581 hypothetical protein
group_582 hypothetical protein
group_585 hypothetical protein
group_586 putative HTH-type transcriptional regulator
group_587 hypothetical protein
group_588 hypothetical protein

group_590 Farnesyl diphosphate synthase
group_591 L-methionine gamma-lyase
group_594 hypothetical protein
group_598 hypothetical protein
group_599 GTP cyclohydrolase 1 type 2
group_600 hypothetical protein
group_601 hypothetical protein
group_605 hypothetical protein
group_606 hypothetical protein
group_609 Nitronate monooxygenase
group_610 hypothetical protein
group_611 hypothetical protein
group_612 hypothetical protein
group_616 hypothetical protein
group_622 hypothetical protein
group_624 hypothetical protein
group_625 Putative peptidyl-prolyl cis-trans isomerase
group_627 hypothetical protein
group_628 hypothetical protein
group_629 putative metallo-hydrolase
group_634 hypothetical protein
group_635 hypothetical protein
group_637 hypothetical protein
group_640 Nucleoid-associated protein
group_643 hypothetical protein
group_646 hypothetical protein
group_647 hypothetical protein
group_654 putative response regulatory protein
group_655 hypothetical protein
group_659 hypothetical protein
group_660 hypothetical protein

group_661 hypothetical protein
group_669 hypothetical protein
group_672 hypothetical protein
group_673 hypothetical protein
group_674 hypothetical protein
group_677 hypothetical protein
group_680 hypothetical protein
group_681 hypothetical protein
group_684 hypothetical protein
group_687 hypothetical protein
group_698 hypothetical protein
group_699 hypothetical protein
group_700 hypothetical protein
group_705 hypothetical protein
group_717 hypothetical protein
group_718 hypothetical protein
group_719 hypothetical protein
group_720 hypothetical protein
group_723 hypothetical protein
group_724 hypothetical protein
group_726 hypothetical protein
group_729 hypothetical protein
group_733 Putative lipid kinase
group_736 hypothetical protein
group_743 hypothetical protein
group_746 hypothetical protein
group_752 hypothetical protein
group_756 hypothetical protein
group_758 putative zinc protease
group_762 CutC-like protein
group_765 Putative TrmH family tRNA/rRNA methyltransferase

group_767 hypothetical protein
group_769 hypothetical protein
group_771 hypothetical protein
group_773 hypothetical protein
group_776 hypothetical protein
group_779 Putative gluconeogenesis factor
group_780 hypothetical protein
group_783 hypothetical protein
group_789 hypothetical protein
group_791 hypothetical protein
group_792 hypothetical protein
group_793 hypothetical protein
group_804 Endo-alpha-N-acetylgalactosaminidase
group_805 hypothetical protein
group_806 Fluoroquinolones export ATP-binding protein
group_809 hypothetical protein
group_810 hypothetical protein
group_812 hypothetical protein
group_818 hypothetical protein
group_819 hypothetical protein
group_820 putative ABC transporter ATP-binding protein
group_821 hypothetical protein
group_822 hypothetical protein
group_823 hypothetical protein
group_824 hypothetical protein
group_826 hypothetical protein
group_829 hypothetical protein
group_831 hypothetical protein
group_833 hypothetical protein
group_836 hypothetical protein
group_838 hypothetical protein

group_843 hypothetical protein
group_844 hypothetical protein
group_846 hypothetical protein
group_848 Carboxynorspermidine synthase
group_849 hypothetical protein
group_851 hypothetical protein
group_856 hypothetical protein
group_858 hypothetical protein
group_864 hypothetical protein
group_870 hypothetical protein
group_876 hypothetical protein
group_878 hypothetical protein
group_879 hypothetical protein
group_881 hypothetical protein
group_882 Deoxyguanosinetriphosphate triphosphohydrolase-like protein
group_887 Stress response regulator gls24
group_889 hypothetical protein
group_890 hypothetical protein
group_893 hypothetical protein
group_902 hypothetical protein
group_906 hypothetical protein
group_908 hypothetical protein
group_909 hypothetical protein
group_911 hypothetical protein
group_915 hypothetical protein
group_916 Secreted 45 kDa protein
group_920 hypothetical protein
group_921 hypothetical protein
group_922 putative ABC transporter ATP-binding protein
group_927 hypothetical protein
group_928 hypothetical protein

group_931	hypothetical protein
group_932	hypothetical protein
group_941	hypothetical protein
group_943	hypothetical protein
group_945	hypothetical protein
group_946	putative ABC transporter ATP-binding protein
group_949	hypothetical protein
group_954	hypothetical protein
group_956	hypothetical protein
group_957	hypothetical protein
group_959	hypothetical protein
group_96	hypothetical protein
group_962	hypothetical protein
group_965	hypothetical protein
group_969	putative oxidoreductase
group_975	hypothetical protein
group_977	hypothetical protein
group_981	hypothetical protein
group_984	N-acetyldiaminopimelate deacetylase
group_987	hypothetical protein
group_991	hypothetical protein
group_993	hypothetical protein
group_994	hypothetical protein
group_997	hypothetical protein
group_998	hypothetical protein
group_999	hypothetical protein
grpE	Protein GrpE
gsiC	Glutathione transport system permease protein GsiC
gspA_1	General stress protein A
gspA_2	General stress protein A
gspF	Putative type II secretion system protein F

gtaB	UTP--glucose-1-phosphate uridylyltransferase
gtf1	Glycosyltransferase Gtf1
gtf2_1	Glycosyltransferase-stabilizing protein Gtf2
gtf2_2	Glycosyltransferase-stabilizing protein Gtf2
gtf2_3	Glycosyltransferase-stabilizing protein Gtf2
gtf2_4	Glycosyltransferase-stabilizing protein Gtf2
gtfA	Sucrose phosphorylase
guaA	GMP synthase [glutamine-hydrolyzing]
guaB_1	Inosine-5'-monophosphate dehydrogenase
guaB_2	Inosine-5'-monophosphate dehydrogenase
guaC	GMP reductase
gyrA	DNA gyrase subunit A
gyrB	DNA gyrase subunit B
hcnC	Hydrogen cyanide synthase subunit HcnC
hemH	Ferrochelatase
hemN	Oxygen-independent coproporphyrinogen-III oxidase-like protein
hepC	Heparin-sulfate lyase
hflK	Modulator of FtsH protease HflK
hflX	GTPase HflX
hisS	Histidine--tRNA ligase
hmo	4-hydroxymandelate oxidase
hmpT	Thiamine precursor transporter HmpT
hom	Homoserine dehydrogenase
hpdA	4-hydroxyphenylacetate decarboxylase activating enzyme
hpf	Ribosome hibernation promotion factor
hprK	HPr kinase/phosphorylase
hpt	Hypoxanthine-guanine phosphoribosyltransferase
hrcA	Heat-inducible transcription repressor HrcA
hsdM	Type I restriction enzyme EcoKI M protein
hsdR	Type-1 restriction enzyme R protein
hsdS	hypothetical protein

hsIO	33 kDa chaperonin
hsIR	Heat shock protein 15
hssS	Heme sensor protein HssS
htpX	Protease HtpX
htrA	Serine protease Do-like HtrA
hup	DNA-binding protein HU
iga_1	Immunoglobulin A1 protease
iga_2	Immunoglobulin A1 protease
iga_3	Immunoglobulin A1 protease
ileS	Isoleucine--tRNA ligase
ilvA	L-threonine dehydratase biosynthetic IlvA
ilvB	Acetolactate synthase large subunit
ilvC	Ketol-acid reductoisomerase (NADP(+))
ilvD	Dihydroxy-acid dehydratase
ilvE	Branched-chain-amino-acid aminotransferase
ilvH	Putative acetolactate synthase small subunit
immR	HTH-type transcriptional regulator ImmR
infA	Translation initiation factor IF-1
infB	Translation initiation factor IF-2
infC	Translation initiation factor IF-3
iolW	scyllo-inositol 2-dehydrogenase (NADP(+))
iolX_1	scyllo-inositol 2-dehydrogenase (NAD(+))
iolX_2	scyllo-inositol 2-dehydrogenase (NAD(+))
irtA	Iron import ATP-binding/permease protein IrtA
iscS_1	Cysteine desulfurase IscS
iscS_2	Cysteine desulfurase IscS
iscU	Iron-sulfur cluster assembly scaffold protein IscU
kcsA	pH-gated potassium channel KcsA
kdgA	KHG/KDPG aldolase
kdgK	2-dehydro-3-deoxygluconokinase
kdgR	HTH-type transcriptional regulator KdgR

kstR2	HTH-type transcriptional repressor KstR2
ktrA	Ktr system potassium uptake protein A
ktrB	Ktr system potassium uptake protein B
lacA	Galactose-6-phosphate isomerase subunit LacA
lacB	Galactose-6-phosphate isomerase subunit LacB
lacC_1	Tagatose-6-phosphate kinase
lacC_2	Tagatose-6-phosphate kinase
lacD	Tagatose 16-diphosphate aldolase
lacE_1	PTS system lactose-specific EIICB component
lacE_2	PTS system lactose-specific EIICB component
lacF_1	PTS system lactose-specific EIIA component
lacF_2	PTS system lactose-specific EIIA component
lacF_3	PTS system lactose-specific EIIA component
lacF_4	Lactose transport system permease protein LacF
lacF_5	Lactose transport system permease protein LacF
lacG_1	6-phospho-beta-galactosidase
lacG_2	6-phospho-beta-galactosidase
lacR_1	Lactose phosphotransferase system repressor
lacR_2	Lactose phosphotransferase system repressor
lacR_3	HTH-type transcriptional regulator LacR
lafA	Bacteriocin lactacin-F subunit LafA
lagD_1	Lactococcin-G-processing and transport ATP-binding protein LagD
lagD_2	Lactococcin-G-processing and transport ATP-binding protein LagD
lagD_3	Lactococcin-G-processing and transport ATP-binding protein LagD
lagD_4	Lactococcin-G-processing and transport ATP-binding protein LagD
lagD_5	Lactococcin-G-processing and transport ATP-binding protein LagD
lcnD_1	Lactococcin A secretion protein LcnD
lcnD_2	Lactococcin A secretion protein LcnD
ldh	L-lactate dehydrogenase
lepA	Elongation factor 4
leuA	2-isopropylmalate synthase

leuB_1	3-isopropylmalate dehydrogenase
leuB_2	3-isopropylmalate dehydrogenase
leuD	3-isopropylmalate dehydratase small subunit
leuS	Leucine--tRNA ligase
levE	PTS system fructose-specific EIIB component
levS	Levansucrase
lgt	Prolipoprotein diacylglyceryl transferase
liaR	Transcriptional regulatory protein LiaR
liaS	Sensor histidine kinase LiaS
licA	Lichenan-specific phosphotransferase enzyme IIA component
licC_1	Lichenan permease IIC component
licC_2	Lichenan permease IIC component
licC_3	Lichenan permease IIC component
licC_4	Lichenan permease IIC component
licC_5	Lichenan permease IIC component
licC_6	Lichenan permease IIC component
licR_1	putative licABCH operon regulator
licR_2	putative licABCH operon regulator
licT_1	Transcription antiterminator LicT
licT_2	Transcription antiterminator LicT
ligA	DNA ligase
limB	Limonene 12-monooxygenase
livF	High-affinity branched-chain amino acid transport ATP-binding protein LivF
livH_1	High-affinity branched-chain amino acid transport system permease protein LivH
livH_2	High-affinity branched-chain amino acid transport system permease protein LivH
lmrA_1	Multidrug resistance ABC transporter ATP-binding and permease protein
lmrA_2	Multidrug resistance ABC transporter ATP-binding and permease protein
InpD	UDP-glucose 4-epimerase
lon	Lon protease
lpd	Dihydrolipoyl dehydrogenase
lplJ	Lipoate-protein ligase LplJ

lptB	Lipopolysaccharide export system ATP-binding protein LptB
Irp	Leucine-rich protein
IspA	Lipoprotein signal peptidase
ltxB	Leukotoxin export ATP-binding protein LtxB
luxS	S-ribosylhomocysteine lyase
lysA_1	Diaminopimelate decarboxylase
lysA_2	Diaminopimelate decarboxylase
lysS	Lysine--tRNA ligase
lytA_1	Autolysin
lytA_2	Autolysin
lytA_3	Autolysin
lytA_5	Autolysin
lytB_2	Putative endo-beta-N-acetylglucosaminidase
lytB_3	Putative endo-beta-N-acetylglucosaminidase
lytB_4	Putative endo-beta-N-acetylglucosaminidase
lytB_5	Putative endo-beta-N-acetylglucosaminidase
lytN	putative cell wall hydrolase LytN
macB	Macrolide export ATP-binding/permease protein MacB
malF	Maltose transport system permease protein MalF
malG	Maltose transport system permease protein MalG
malK_1	Maltose/maltodextrin import ATP-binding protein MalK
malK_2	Maltose/maltodextrin import ATP-binding protein MalK
malP	Maltodextrin phosphorylase
malQ	4-alpha-glucanotransferase
malR	HTH-type transcriptional regulator MalR
malX	Maltose/maltodextrin-binding protein
manA	Mannose-6-phosphate isomerase ManA
manX_1	PTS system mannose-specific EIIAB component
manX_2	PTS system mannose-specific EIIAB component
manX_3	PTS system mannose-specific EIIAB component
manX_4	PTS system mannose-specific EIIAB component

manZ_1	PTS system mannose-specific EIID component
manZ_2	PTS system mannose-specific EIID component
manZ_3	PTS system mannose-specific EIID component
manZ_4	PTS system mannose-specific EIID component
map	Methionine aminopeptidase 1
mapP	Maltose 6'-phosphate phosphatase
mapZ	Mid-cell-anchored protein Z
marR	Multiple antibiotic resistance protein MarR
mcrB_1	5-methylcytosine-specific restriction enzyme B
mcrB_2	5-methylcytosine-specific restriction enzyme B
mecA	Adapter protein MecA
menH	2-succinyl-6-hydroxy-24-cyclohexadiene-1-carboxylate synthase
mepA	Multidrug export protein MepA
metA	Homoserine O-succinyltransferase
metE	5-methyltetrahydropteroyltriglutamate--homocysteine methyltransferase
metF	5,10-methylenetetrahydrofolate reductase
metG	Methionine--tRNA ligase
metI	Cystathionine gamma-synthase/O-acetylhomoserine (thiol)-lyase
metK	S-adenosylmethionine synthase
metN	Methionine import ATP-binding protein MetN
metP	Methionine import system permease protein MetP
metQ	D-methionine-binding lipoprotein MetQ
mfd	Transcription-repair-coupling factor
mglA	Galactose/methyl galactoside import ATP-binding protein MglA
mglC	Galactoside transport system permease protein MglC
mgsR	Regulatory protein MgsR
miaA	tRNA dimethylallyltransferase
misCA	Membrane protein insertase MisCA
mltG	Endolytic murein transglycosylase
mngB	Mannosylglycerate hydrolase
mnmA	tRNA-specific 2-thiouridylase MnmA

mnmE	tRNA modification GTPase MnmE
mnmG	tRNA uridine 5-carboxymethylaminomethyl modification enzyme MnmG
mntB	Manganese transport system membrane protein MntB
modC	Molybdenum import ATP-binding protein ModC
moeB	Molybdopterin-synthase adenylyltransferase
moeZ	putative adenylyltransferase/sulfurtransferase MoeZ
mraY	Phospho-N-acetylmuramoyl-pentapeptide-transferase
mreC	Cell shape-determining protein MreC
mrnC	Mini-ribonuclease 3
mro	Aldose 1-epimerase
mrp	Iron-sulfur cluster carrier protein
msbA	Lipid A export ATP-binding/permease protein MsbA
mscL	Large-conductance mechanosensitive channel
mshD_1	Mycothiol acetyltransferase
mshD_2	Mycothiol acetyltransferase
mshD_3	Mycothiol acetyltransferase
msmE	Multiple sugar-binding protein
msrAB_1	Peptide methionine sulfoxide reductase MsrA/MsrB
msrAB_2	Peptide methionine sulfoxide reductase MsrA/MsrB
msrAB1	Peptide methionine sulfoxide reductase MsrA/MsrB 1
msrC	Free methionine-R-sulfoxide reductase
msrR	Regulatory protein MsrR
mtaD	5-methylthioadenosine/S-adenosylhomocysteine deaminase
mtcA1	Beta-carbonic anhydrase 1
mtnN	5'-methylthioadenosine/S-adenosylhomocysteine nucleosidase
murA1_1	UDP-N-acetylglucosamine 1-carboxyvinyltransferase
murA1_2	UDP-N-acetylglucosamine 1-carboxyvinyltransferase 1
murB	UDP-N-acetylenolpyruvoylglucosamine reductase
murC	UDP-N-acetylmuramate--L-alanine ligase
murD	UDP-N-acetylmuramoylalanine--D-glutamate ligase
murE	UDP-N-acetylmuramoyl-L-alanyl-D-glutamate--L-lysine ligase

murF_1	UDP-N-acetylmuramoyl-tripeptide--D-alanyl-D-alanine ligase
murF_2	UDP-N-acetylmuramoyl-tripeptide--D-alanyl-D-alanine ligase
murG	UDP-N-acetylglucosamine--N-acetylmuramyl-(pentapeptide) pyrophosphoryl-undecaprenol N
murI	Glutamate racemase
murJ	Lipid II flippase MurJ
mutL	DNA mismatch repair protein MutL
mutM	Formamidopyrimidine-DNA glycosylase
mutS	DNA mismatch repair protein MutS
mutS2	Endonuclease MutS2
mutX_1	8-oxo-dGTP diphosphatase
mutX_2	8-oxo-dGTP diphosphatase
mutY	Adenine DNA glycosylase
mvaA	3-hydroxy-3-methylglutaryl-coenzyme A reductase
mvaS	Hydroxymethylglutaryl-CoA synthase
nadC	putative nicotinate-nucleotide pyrophosphorylase [carboxylating]
nadD	Nicotinate-nucleotide adenylyltransferase
nadE	NH(3)-dependent NAD(+) synthetase
nadK	NAD kinase
nagA	N-acetylglucosamine-6-phosphate deacetylase
nagAa	Ferredoxin--NAD(P)(+) reductase (naphthalene dioxygenase/salicylate 5-hydroxylase ferredoxin)
nagB	Glucosamine-6-phosphate deaminase
nagC_1	N-acetylglucosamine repressor
nagC_2	N-acetylglucosamine repressor
nanA_1	N-acetylneuraminic acid lyase
nanA_2	N-acetylneuraminic acid lyase
nanA_3	Sialidase A
nanB_1	Sialidase B
nanB_2	Sialidase B
nanE_2	Putative N-acetylmannosamine-6-phosphate 2-epimerase
nanE_3	Putative N-acetylmannosamine-6-phosphate 2-epimerase
natA_1	ABC transporter ATP-binding protein NatA

natA_2	ABC transporter ATP-binding protein NatA
natA_3	ABC transporter ATP-binding protein NatA
natA_4	ABC transporter ATP-binding protein NatA
natA_5	ABC transporter ATP-binding protein NatA
ndk	Nucleoside diphosphate kinase
ndvA	Beta-(1-->2)glucan export ATP-binding/permease protein NdvA
nfr1	NADH-dependent flavin reductase subunit 1
nfr2	NADH-dependent flavin reductase subunit 2
nfrA2	FMN reductase [NAD(P)H]
nhaK	Sodium potassium lithium and rubidium/H(+) antiporter
niaR	putative transcription repressor NiaR
niaX	Niacin transporter NiaX
nnrD	ADP-dependent (S)-NAD(P)H-hydrate dehydratase
npIT	Neopullulanase
nrdD_1	Anaerobic ribonucleoside-triphosphate reductase
nrdD_2	Anaerobic ribonucleoside-triphosphate reductase
nrdE1	Ribonucleoside-diphosphate reductase subunit alpha 1
nrdF	Ribonucleoside-diphosphate reductase 2 subunit beta
nrdG	Anaerobic ribonucleoside-triphosphate reductase-activating protein
nrdH	Glutaredoxin-like protein NrdH
nrdR	Transcriptional repressor NrdR
nrnA	putative bifunctional oligoribonuclease and PAP phosphatase NrnA
nspC	Carboxynorspermidine/carboxyspermidine decarboxylase
ntpA	V-type sodium ATPase catalytic subunit A
ntpB	V-type sodium ATPase subunit B
ntpC	V-type sodium ATPase subunit C
ntpD	V-type sodium ATPase subunit D
ntpG	V-type sodium ATPase subunit G
ntpK	V-type sodium ATPase subunit K
nudF	ADP-ribose pyrophosphatase
nusA	Transcription termination/antitermination protein NusA

nusB	N utilization substance protein B
nusG	Transcription termination/antitermination protein NusG
oatA	O-acetyltransferase OatA
obg	GTPase Obg
ogt	Methylated-DNA--protein-cysteine methyltransferase
ohrR	Organic hydroperoxide resistance transcriptional regulator
oppC	Oligopeptide transport system permease protein OppC
oppD	Oligopeptide transport ATP-binding protein OppD
oppF	Oligopeptide transport ATP-binding protein OppF
opuBA	Choline transport ATP-binding protein OpuBA
opuCB	Glycine betaine/carnitine/choline transport system permease protein OpuCB
paal	Acyl-coenzyme A thioesterase Paal
pabA	Aminodeoxychorismate/anthranilate synthase component 2
pabB	Aminodeoxychorismate synthase component 1
pacS	putative copper-transporting ATPase PacS
paiA	Spermidine/spermine N(1)-acetyltransferase
panT	Pantothenic acid transporter PanT
parC	DNA topoisomerase 4 subunit A
parE	DNA topoisomerase 4 subunit B
patA_1	Putative N-acetyl-LL-diaminopimelate aminotransferase
patA_2	Peptidoglycan O-acetyltransferase
patB	Cystathionine beta-lyase PatB
pbpF_1	Penicillin-binding protein 1F
pbpF_2	Penicillin-binding protein 1F
pbpX_1	Penicillin-binding protein 2X
pbpX_2	Putative penicillin-binding protein PbpX
pbuO	Guanine/hypoxanthine permease PbuO
pcp_1	Pyrrolidone-carboxylate peptidase
pcp_2	Pyrrolidone-carboxylate peptidase
pcrA	ATP-dependent DNA helicase PcrA
pdg	Ultraviolet N-glycosylase/AP lyase

pdhC	Dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase comple
pdp	Pyrimidine-nucleoside phosphorylase
pdxK	Pyridoxine kinase
pdxS	Pyridoxal 5'-phosphate synthase subunit PdxS
pdxT	Pyridoxal 5'-phosphate synthase subunit PdxT
peb1A	Major cell-binding factor
penA	Penicillin-binding protein 2B
pepA_1	Glutamyl aminopeptidase
pepA_2	Glutamyl aminopeptidase
pepC	Aminopeptidase C
pepF1_1	Oligoendopeptidase F plasmid
pepF1_2	Oligoendopeptidase F plasmid
pepN	Aminopeptidase N
pepO	Neutral endopeptidase
pepQ	Xaa-Pro dipeptidase
pepS	Aminopeptidase PepS
pepT	Peptidase T
pepV	Beta-Ala-Xaa dipeptidase
pepX	Xaa-Pro dipeptidyl-peptidase
pfbA	Plasmin and fibronectin-binding protein A
pfkA	ATP-dependent 6-phosphofructokinase
pflA	Pyruvate formate-lyase-activating enzyme
pflB	Formate acetyltransferase
pgaC	Poly-beta-16-N-acetyl-D-glucosamine synthase
pgcA	Phosphoglucomutase
pgdA	Peptidoglycan-N-acetylglucosamine deacetylase
pgi	Glucose-6-phosphate isomerase
pgk	Phosphoglycerate kinase
pgl	6-phosphogluconolactonase
pglA	NN'-diacetylbaucillosaminyl-diphospho-undecaprenol alpha-13-N-acetylgalactosaminyltransfe
pglF	UDP-N-acetyl-alpha-D-glucosamine C6 dehydratase

pglJ	N-acetylgalactosamine-NN'-diacetylbacillosaminyldiphosphoundecaprenol 4-alpha-N-acety
pgsA	CDP-diacylglycerol--glycerol-3-phosphate 3-phosphatidyltransferase
pheA	Prephenate dehydratase
pheS	Phenylalanine--tRNA ligase alpha subunit
pheT_1	Phenylalanine--tRNA ligase beta subunit
pheT_2	Phenylalanine--tRNA ligase beta subunit
phnV_1	Putative 2-aminoethylphosphonate transport system permease protein PhnV
phnV_2	Putative 2-aminoethylphosphonate transport system permease protein PhnV
phoB	Phosphate regulon transcriptional regulatory protein PhoB
phoP	Alkaline phosphatase synthesis transcriptional regulatory protein PhoP
phoR	Alkaline phosphatase synthesis sensor protein PhoR
phoU_1	Phosphate-specific transport system accessory protein PhoU
phoU_2	Phosphate-specific transport system accessory protein PhoU
pinR	Serine recombinase PinR
pkn1	Serine/threonine-protein kinase pkn1
plsC	1-acyl-sn-glycerol-3-phosphate acyltransferase
plsX	Phosphate acyltransferase
plsY	Glycerol-3-phosphate acyltransferase
ply_1	Pneumolysin
ply_2	Pneumolysin
pncB2	Nicotinate phosphoribosyltransferase pncB2
pnp	Polyribonucleotide nucleotidyltransferase
pnuC	Nicotinamide riboside transporter PnuC
polA	DNA polymerase I
polC_1	DNA polymerase III PolC-type
polC_2	DNA polymerase III PolC-type
ponA	Penicillin-binding protein 1A
potA	Spermidine/putrescine import ATP-binding protein PotA
potB	Spermidine/putrescine transport system permease protein PotB
potD_1	Spermidine/putrescine-binding periplasmic protein
potD_2	Spermidine/putrescine-binding periplasmic protein

pox5	Pyruvate oxidase
ppaC	putative manganese-dependent inorganic pyrophosphatase
ppc	Phosphoenolpyruvate carboxylase
pphA	Serine/threonine-protein phosphatase 1
prfA	Peptide chain release factor 1
prfB	Peptide chain release factor 2
prfC	Peptide chain release factor 3
priA	Primosomal protein N'
prmA	Ribosomal protein L11 methyltransferase
prmC	Release factor glutamine methyltransferase
proA	Gamma-glutamyl phosphate reductase
proB	Glutamate 5-kinase 1
proC	Pyrroline-5-carboxylate reductase
proS	Proline--tRNA ligase
prs	Ribose-phosphate pyrophosphokinase
prs2	Ribose-phosphate pyrophosphokinase 2
prsA	Foldase protein PrsA
psaA	Manganese ABC transporter substrate-binding lipoprotein
pspB	Putative phosphoserine phosphatase 2
pstA2_1	Phosphate transport system permease protein PstA 2
pstA2_2	Phosphate transport system permease protein PstA 2
pstB3_1	Phosphate import ATP-binding protein PstB 3
pstB3_2	Phosphate import ATP-binding protein PstB 3
pstB3_3	Phosphate import ATP-binding protein PstB 3
pstC	Phosphate transport system permease protein PstC
pstC2	Phosphate transport system permease protein PstC 2
pstS1	Phosphate-binding protein PstS 1
pstS2	Phosphate-binding protein PstS 2
pta	Phosphate acetyltransferase
pth	Peptidyl-tRNA hydrolase
ptrB	Protease 2

ptsG_1	PTS system glucose-specific EIICBA component
ptsG_2	PTS system glucose-specific EIICBA component
ptsH	Phosphocarrier protein HPr
ptsI	Phosphoenolpyruvate-protein phosphotransferase
ptsP	Phosphoenolpyruvate-dependent phosphotransferase system
puckK	Uric acid permease Puck
pulA	Pullulanase
punA	Purine nucleoside phosphorylase 1
purA	Adenylosuccinate synthetase
purB	Adenylosuccinate lyase
purC	Phosphoribosylaminoimidazole-succinocarboxamide synthase
purD	Phosphoribosylamine--glycine ligase
purE	N5-carboxyaminoimidazole ribonucleotide mutase
purF	Amidophosphoribosyltransferase
purH	Bifunctional purine biosynthesis protein PurH
purK	N5-carboxyaminoimidazole ribonucleotide synthase
purL	Phosphoribosylformylglycinamide synthase
purM	Phosphoribosylformylglycinamide cyclo-ligase
purN	Phosphoribosylglycinamide formyltransferase
purR	Pur operon repressor
pyk	Pyruvate kinase
pyrB	Aspartate carbamoyltransferase
pyrC	Dihydroorotase
pyrDA	putative dihydroorotate dehydrogenase A (fumarate)
pyrDB	Dihydroorotate dehydrogenase B (NAD(+)) catalytic subunit
pyrE	Orotate phosphoribosyltransferase
pyrF	Orotidine 5'-phosphate decarboxylase
pyrG	CTP synthase
pyrH	Uridylate kinase
pyrK	Dihydroorotate dehydrogenase B (NAD(+)) electron transfer subunit
pyrP	Uracil permease

pyrR	Bifunctional protein PyrR
queA	S-adenosylmethionine:tRNA ribosyltransferase-isomerase
queF	NADPH-dependent 7-cyano-7-deazaguanine reductase
queT	Queuosine precursor transporter QueT
radA	DNA repair protein RadA
rapA	RNA polymerase-associated protein RapA
rbgA	Ribosome biogenesis GTPase A
rclA	putative pyridine nucleotide-disulfide oxidoreductase RclA
rdgB	dITP/XTP pyrophosphatase
rebM	Demethylrebeccamycin-D-glucose O-methyltransferase
recA	Protein RecA
recD2	ATP-dependent RecD-like DNA helicase
recF	DNA replication and repair protein RecF
recG	ATP-dependent DNA helicase RecG
recJ	Single-stranded-DNA-specific exonuclease RecJ
recN	DNA repair protein RecN
recO	DNA repair protein RecO
recR	Recombination protein RecR
recU	Holliday junction resolvase RecU
recX	Regulatory protein RecX
regX3	Sensory transduction protein regX3
relA	Bifunctional (p)ppGpp synthase/hydrolase RelA
resA	Thiol-disulfide oxidoreductase ResA
rex	Redox-sensing transcriptional repressor Rex
rexB	ATP-dependent helicase/deoxyribonuclease subunit B
rfbA	Glucose-1-phosphate thymidyltransferase 1
rfbC	putative dTDP-4-dehydrorhamnose 35-epimerase
rhaB	L-Rhamnulokinase
ribBA	Riboflavin biosynthesis protein RibBA
ribD_1	Riboflavin biosynthesis protein RibD
ribD_2	Riboflavin biosynthesis protein RibD

ribE	Riboflavin synthase
ribF	Riboflavin biosynthesis protein RibF
ribH	67-dimethyl-8-ribityllumazine synthase
ribU	Riboflavin transporter RibU
ribX	Riboflavin transport system permease protein RibX
ricR	Copper-sensing transcriptional repressor RicR
rimI	N-alpha-acetyltransferase RimI
rimM	Ribosome maturation factor RimM
rimP	Ribosome maturation factor RimP
rizA	L-arginine-specific L-amino acid ligase
rlmA	23S rRNA (guanine(745)-N(1))-methyltransferase
rlmCD_1	23S rRNA (uracil-C(5))-methyltransferase RlmCD
rlmCD_2	23S rRNA (uracil-C(5))-methyltransferase RlmCD
rlmD	23S rRNA (uracil(1939)-C(5))-methyltransferase RlmD
rlmH	Ribosomal RNA large subunit methyltransferase H
rlmI	Ribosomal RNA large subunit methyltransferase I
rlmL	Ribosomal RNA large subunit methyltransferase K/L
rlmN_1	putative dual-specificity RNA methyltransferase RlmN
rlmN_2	Dual-specificity RNA methyltransferase RlmN
rluB	Ribosomal large subunit pseudouridine synthase B
rluD_1	Ribosomal large subunit pseudouridine synthase D
rluD_2	Ribosomal large subunit pseudouridine synthase D
rmlB	dTDP-glucose 46-dehydratase
rmlD_1	dTDP-4-dehydrorhamnose reductase
rmlD_2	dTDP-4-dehydrorhamnose reductase
rnc	Ribonuclease 3
rnhB	Ribonuclease HII
rnhC	Ribonuclease HIII
rnj1	Ribonuclease J 1
rnj2	Ribonuclease J 2
rnmV	Ribonuclease M5

rnpA	Ribonuclease P protein component
rnr	Ribonuclease R
rny	Ribonuclease Y
rnz	Ribonuclease Z
rodA	Peptidoglycan glycosyltransferase RodA
rodZ	Cytoskeleton protein RodZ
rpe	Ribulose-phosphate 3-epimerase
rpiA	Ribose-5-phosphate isomerase A
rpiR	HTH-type transcriptional regulator RpiR
rplA	50S ribosomal protein L1
rplB	50S ribosomal protein L2
rplC	50S ribosomal protein L3
rplE	50S ribosomal protein L5
rplF	50S ribosomal protein L6
rplGA	putative ribosomal protein YlxQ
rplI	50S ribosomal protein L9
rplJ	50S ribosomal protein L10
rplK	50S ribosomal protein L11
rplL	50S ribosomal protein L7/L12
rplM	50S ribosomal protein L13
rplN	50S ribosomal protein L14
rplO	50S ribosomal protein L15
rplP	50S ribosomal protein L16
rplQ	50S ribosomal protein L17
rplR	50S ribosomal protein L18
rplS	50S ribosomal protein L19
rplT	50S ribosomal protein L20
rplU	50S ribosomal protein L21
rplV	50S ribosomal protein L22
rplW	50S ribosomal protein L23
rplX	50S ribosomal protein L24

rpmA	50S ribosomal protein L27
rpmB	50S ribosomal protein L28
rpmC	50S ribosomal protein L29
rpmD	50S ribosomal protein L30
rpmE2	50S ribosomal protein L31 type B
rpmF	50S ribosomal protein L32
rpmGA	50S ribosomal protein L33 1
rpmI	50S ribosomal protein L35
rpoA	DNA-directed RNA polymerase subunit alpha
rpoB	DNA-directed RNA polymerase subunit beta
rpoC	DNA-directed RNA polymerase subunit beta'
rpoE	putative DNA-directed RNA polymerase subunit delta
rpoZ	DNA-directed RNA polymerase subunit omega
rpsA_1	30S Ribosomal protein S1
rpsA_2	30S ribosomal protein S1
rpsB	30S ribosomal protein S2
rpsC	30S ribosomal protein S3
rpsD	30S ribosomal protein S4
rpsE	30S ribosomal protein S5
rpsF	30S ribosomal protein S6
rpsG	30S ribosomal protein S7
rpsH	30S ribosomal protein S8
rpsI	30S ribosomal protein S9
rpsJ	30S ribosomal protein S10
rpsK	30S ribosomal protein S11
rpsL	30S ribosomal protein S12
rpsM	30S ribosomal protein S13
rpsN2	Alternate 30S ribosomal protein S14
rpsO	30S ribosomal protein S15
rpsP	30S ribosomal protein S16
rpsQ	30S ribosomal protein S17

rpsR	30S ribosomal protein S18
rpsS	30S ribosomal protein S19
rpsT	30S ribosomal protein S20
rpsU	30S ribosomal protein S21
rsfS	Ribosomal silencing factor RsfS
rsgA	Small ribosomal subunit biogenesis GTPase RsgA
rsmA	Ribosomal RNA small subunit methyltransferase A
rsmB	Ribosomal RNA small subunit methyltransferase B
rsmC	Ribosomal RNA small subunit methyltransferase C
rsmD	Ribosomal RNA small subunit methyltransferase D
rsmE	Ribosomal RNA small subunit methyltransferase E
rsmF	Ribosomal RNA small subunit methyltransferase F
rsmG	Ribosomal RNA small subunit methyltransferase G
rsmH_1	Ribosomal RNA small subunit methyltransferase H
rsmH_2	Ribosomal RNA small subunit methyltransferase H
rsmI	Ribosomal RNA small subunit methyltransferase I
rsuA_1	Ribosomal small subunit pseudouridine synthase A
rsuA_2	Ribosomal small subunit pseudouridine synthase A
ruvA	Holliday junction ATP-dependent DNA helicase RuvA
ruvB	Holliday junction ATP-dependent DNA helicase RuvB
sacA	Sucrose-6-phosphate hydrolase
saeR	Response regulator SaeR
saeS	Histidine protein kinase SaeS
sall	Adenosyl-chloride synthase
sarA_1	Oligopeptide-binding protein SarA
sarA_2	Oligopeptide-binding protein SarA
sarA_3	Oligopeptide-binding protein SarA
scpA	Segregation and condensation protein A
scpB	Segregation and condensation protein B
scrB	Sucrose-6-phosphate hydrolase
sdhA	L-serine dehydratase alpha chain

sdhB	L-serine dehydratase beta chain
sdrD	Serine-aspartate repeat-containing protein D
secA_1	Protein translocase subunit SecA
secA_2	Protein translocase subunit SecA
secG	putative protein-export membrane protein SecG
secY	Protein translocase subunit SecY
secY2	Accessory Sec system protein translocase subunit SecY2
sepF	Cell division protein SepF
serB	Phosphoserine phosphatase
serS	Serine--tRNA ligase
sglT	Sodium/glucose cotransporter
sigA	RNA polymerase sigma factor SigA
skfE	SkfA peptide export ATP-binding protein SkfE
slmA	Nucleoid occlusion factor SlmA
slyA_1	Transcriptional regulator SlyA
slyA_2	Transcriptional regulator SlyA
smc	Chromosome partition protein Smc
smpB	SsrA-binding protein
sodA	Superoxide dismutase [Mn]
sorA	PTS system sorbose-specific EIIC component
sorB_1	PTS system sorbose-specific EIIB component
sorB_2	PTS system sorbose-specific EIIB component
sorC_1	PTS system sorbose-specific EIIC component
sorC_2	Sorbitol operon regulator
sorC_3	PTS system sorbose-specific EIIC component
soxS	Regulatory protein SoxS
speA	Arginine decarboxylase
speE	Polyamine aminopropyltransferase
spo0C	Chromosome-partitioning protein Spo0J
spsB_1	Signal peptidase IB
spsB_2	Signal peptidase IB

spxA_1	Regulatory protein Spx
spxA_2	Regulatory protein Spx
spxA_3	Regulatory protein Spx
srIR_1	Glucitol operon repressor
srIR_2	Glucitol operon repressor
ssb_1	Single-stranded DNA-binding protein
ssb_2	Single-stranded DNA-binding protein
sstT	Serine/threonine transporter SstT
stkP	Serine/threonine-protein kinase StkP
strH_1	Beta-N-acetylhexosaminidase
strH_2	Beta-N-acetylhexosaminidase
sttH	Streptothricin hydrolase
sufB_1	FeS cluster assembly protein SufB
sufB_2	FeS cluster assembly protein SufB
sufS	Cysteine desulfurase SufS
sugC	Trehalose import ATP-binding protein SugC
suhB	Fructose-16-bisphosphatase/inositol-1-monophosphatase
sulA	Dihydropteroate synthase
sulD	Bifunctional folate synthesis protein
tabA_1	Toxin-antitoxin biofilm protein TabA
tabA_2	Toxin-antitoxin biofilm protein TabA
tadA	tRNA-specific adenosine deaminase
tag	DNA-3-methyladenine glycosylase 1
tarI	Ribitol-5-phosphate cytidyltransferase
tarJ	Ribulose-5-phosphate reductase
tcyA_1	L-cystine-binding protein TcyA
tcyA_2	L-cystine-binding protein TcyA
tcyC	L-cystine import ATP-binding protein TcyC
tcyJ	L-cystine-binding protein TcyJ
tcyN	L-cystine import ATP-binding protein TcyN
tdk	Thymidine kinase

tehB	putative S-adenosyl-L-methionine-dependent methyltransferase TehB
tenA_1	Aminopyrimidine aminohydrolase
tenA_2	Aminopyrimidine aminohydrolase
tgt	Queuine tRNA-ribosyltransferase
thiD	Hydroxymethylpyrimidine/phosphomethylpyrimidine kinase
thiE_1	Thiamine-phosphate synthase
thiE_2	Thiamine-phosphate synthase
thiI	putative tRNA sulfurtransferase
thiM_1	Hydroxyethylthiazole kinase
thiM_2	Hydroxyethylthiazole kinase
thiN	Thiamine pyrophosphokinase
thiY	Formylaminopyrimidine-binding protein
thrB_1	Homoserine kinase
thrB_2	Homoserine kinase
thrC	Threonine synthase
thrS	Threonine--tRNA ligase
thyA	Thymidylate synthase
tig	Trigger factor
tilS	tRNA(Ile)-lysidine synthase
tkt_1	Transketolase
tkt_2	Transketolase
tlyA	Hemolysin A
tmk	Thymidylate kinase
tmpC	Membrane lipoprotein TmpC
topA	DNA topoisomerase 1
tpiA	Triosephosphate isomerase
tpx	putative thiol peroxidase
tqsA	AI-2 transport protein TqsA
treA	Trehalose-6-phosphate hydrolase
treB	PTS system trehalose-specific EIIBC component
treP	PTS system trehalose-specific EIIBC component

treR	HTH-type transcriptional regulator TreR
trkA	Trk system potassium uptake protein TrkA
trkG	Trk system potassium uptake protein TrkG
trmB	tRNA (guanine-N(7)-)-methyltransferase
trmD	tRNA (guanine-N(1)-)-methyltransferase
trmFO	Methylenetetrahydrofolate--tRNA-(uracil-5-)-methyltransferase TrmFO
trmK	tRNA (adenine(22)-N(1))-methyltransferase
trmL	tRNA (cytidine(34)-2'-O)-methyltransferase
trpA	Tryptophan synthase alpha chain
trpB	Tryptophan synthase beta chain
trpC	Indole-3-glycerol phosphate synthase
trpD	Anthranilate phosphoribosyltransferase
trpE	Anthranilate synthase component 1
trpF	N-(5'-phosphoribosyl)anthranilate isomerase
trpS2	Tryptophan--tRNA ligase 2
truA	tRNA pseudouridine synthase A
truB	tRNA pseudouridine synthase B
truC	tRNA pseudouridine synthase C
trxA	Thioredoxin
trxB	Thioredoxin reductase
tsaB	tRNA threonylcarbamoyladenosine biosynthesis protein TsaB
tsaD	tRNA N6-adenosine threonylcarbamoyltransferase
tsaE	tRNA threonylcarbamoyladenosine biosynthesis protein TsaE
tsf	Elongation factor Ts
typA	GTP-binding protein TypA/BipA
tyrA	Prephenate dehydrogenase
tyrS	Tyrosine--tRNA ligase
udk_1	Uridine kinase
udk_2	Uridine kinase
ugd_1	UDP-glucose 6-dehydrogenase
ugd_2	UDP-glucose 6-dehydrogenase

ugt	Unsaturated chondroitin disaccharide hydrolase
ugpA	sn-glycerol-3-phosphate transport system permease protein UgpA
ulaA_1	Ascorbate-specific PTS system EIIC component
ulaA_2	Ascorbate-specific PTS system EIIC component
ulaB	Ascorbate-specific PTS system EIIB component
ulaC	Ascorbate-specific PTS system EIIA component
ulaD	3-keto-L-gulonate-6-phosphate decarboxylase UlaD
ulaE	L-ribulose-5-phosphate 3-epimerase UlaE
ulaG	putative L-ascorbate-6-phosphate lactonase UlaG
ung	Uracil-DNA glycosylase
upp	Uracil phosphoribosyltransferase
uppP	Undecaprenyl-diphosphatase
uppS	Isoprenyl transferase
uvrA	UvrABC system protein A
uvrB	UvrABC system protein B
uvrC	UvrABC system protein C
valS	Valine--tRNA ligase
walk_1	Sensor histidine kinase Walk
walk_2	Sensor histidine kinase Walk
walR	Transcriptional regulatory protein WalR
wbbI	Beta-16-galactofuranosyltransferase WbbI
wbgU	UDP-N-acetylglucosamine 4-epimerase
wcaJ	UDP-glucose:undecaprenyl-phosphate glucose-1-phosphate transferase
wfgD	UDP-Glc:alpha-D-GlcNAc-diphosphoundecaprenol beta-13-glucosyltransferase WfgD
whiA	Putative sporulation transcription regulator WhiA
xerS	Tyrosine recombinase XerS
xpt	Xanthine phosphoribosyltransferase
xseA	Exodeoxyribonuclease 7 large subunit
xseB	Exodeoxyribonuclease 7 small subunit
xyIH	2-hydroxymuconate tautomerase
yabA	Initiation-control protein YabA

yabJ	2-iminobutanoate/2-iminopropanoate deaminase
yafQ	mRNA interferase YafQ
ybaK	Cys-tRNA(Pro)/Cys-tRNA(Cys) deacylase YbaK
ybaN	Inner membrane protein YbaN
ybbH_1	putative HTH-type transcriptional regulator YbbH
ybbH_2	putative HTH-type transcriptional regulator YbbH
ybeY	Endoribonuclease YbeY
ybhL	Inner membrane protein YbhL
ybiT_1	putative ABC transporter ATP-binding protein YbiT
ybiT_2	putative ABC transporter ATP-binding protein YbiT
ybiV	Sugar phosphatase YbiV
ybjI	5-amino-6-(5-phospho-D-ribitylamino)uracil phosphatase YbjI
ycfH	putative metal-dependent hydrolase YcfH
ychF	Ribosome-binding ATPase YchF
ycjO	Inner membrane ABC transporter permease protein YcjO
ycjP	Inner membrane ABC transporter permease protein YcjP
yclM	Aspartokinase 3
yclQ	putative ABC transporter solute-binding protein YclQ
ydaF_1	Putative ribosomal N-acetyltransferase YdaF
ydaF_2	Putative ribosomal N-acetyltransferase YdaF
ydaF_3	Putative ribosomal N-acetyltransferase YdaF
ydaF_4	Putative ribosomal N-acetyltransferase YdaF
ydaF_5	Putative ribosomal N-acetyltransferase YdaF
ydcV	Inner membrane ABC transporter permease protein YdcV
ydfG	NADP-dependent 3-hydroxy acid dehydrogenase YdfG
ydhF	Oxidoreductase YdhF
yecD	Isochorismatase family protein YecD
yecS_1	L-cystine transport system permease protein YecS
yecS_2	L-cystine transport system permease protein YecS
yecS_3	L-cystine transport system permease protein YecS
yeeO	putative FMN/FAD exporter YeeO

yehU	Sensor histidine kinase YehU
yesO_1	Putative ABC transporter substrate-binding protein YesO
yesO_2	Putative ABC transporter substrate-binding protein YesO
yesO_3	Putative ABC transporter substrate-binding protein YesO
yfhA	putative siderophore transport system permease protein YfhA
yfiC	tRNA1(Val) (adenine(37)-N6)-methyltransferase
yfkJ	Low molecular weight protein-tyrosine-phosphatase YfkJ
yfmC	Fe(3+)-citrate-binding protein YfmC
yfmL	putative ATP-dependent RNA helicase YfmL
yfnB	Putative HAD-hydrolase YfnB
ygaZ	Inner membrane protein YgaZ
ygfA	5-formyltetrahydrofolate cyclo-ligase
yghU	Disulfide-bond oxidoreductase YghU
yhaM	3'-5' exoribonuclease YhaM
yhbU	putative protease YhbU
yhbY	RNA-binding protein YhbY
yhdG	putative amino acid permease YhdG
yhdJ	DNA adenine methyltransferase YhdJ
yheH	putative multidrug resistance ABC transporter ATP-binding/permease protein YheH
yheI_1	putative multidrug resistance ABC transporter ATP-binding/permease protein YheI
yheI_2	putative multidrug resistance ABC transporter ATP-binding/permease protein YheI
yheS_1	putative ABC transporter ATP-binding protein YheS
yheS_2	putative ABC transporter ATP-binding protein YheS
yhjX	putative MFS-type transporter YhjX
yicL_1	putative inner membrane transporter YicL
yicL_2	putative inner membrane transporter YicL
yidA_1	Sugar phosphatase YidA
yidA_2	Sugar phosphatase YidA
yidC2	Membrane protein insertase YidC 2
yigZ	IMPACT family member YigZ
yitU	5-amino-6-(5-phospho-D-ribitylamino)uracil phosphatase YitU

yjbK	Putative triphosphatase YjbK
yjbM	GTP pyrophosphokinase YjbM
yjhB	Putative metabolite transport protein YjhB
yjjP	Inner membrane protein YjjP
ykfA	putative murein peptide carboxypeptidase
yknX	Putative efflux system component YknX
yknY_1	putative ABC transporter ATP-binding protein YknY
yknY_2	putative ABC transporter ATP-binding protein YknY
yknY_3	putative ABC transporter ATP-binding protein YknY
yknZ	putative ABC transporter permease YknZ
ykoD_1	Putative HMP/thiamine import ATP-binding protein YkoD
ykoD_2	Putative HMP/thiamine import ATP-binding protein YkoD
ykoD_3	Putative HMP/thiamine import ATP-binding protein YkoD
ykoE	Putative HMP/thiamine permease protein YkoE
ykuL	CBS domain-containing protein YkuL
ykuT	putative MscS family protein YkuT
yodJ	Putative carboxypeptidase YodJ
ypdF	Aminopeptidase YpdF
yraA	Putative cysteine protease YraA
yrrK	Putative pre-16S rRNA nuclease
yteP_1	putative multiple-sugar transport system permease YteP
yteP_2	putative multiple-sugar transport system permease YteP
ytpP	Thioredoxin-like protein YtpP
ytrA	HTH-type transcriptional repressor YtrA
yugI	General stress protein 13
yumC	Ferredoxin--NADP reductase 2
yusV	putative siderophore transport system ATP-binding protein YusV
yutF	Acid sugar phosphatase
yvcJ	Nucleotide-binding protein YvcJ
yvgN	Glyoxal reductase
yvoA	HTH-type transcriptional repressor YvoA

ywIC	Threonylcarbamoyl-AMP synthase
ywnA	Putative HTH-type transcriptional regulator YwnA
ywqC	putative capsular polysaccharide biosynthesis protein YwqC
ywtF	Putative transcriptional regulator YwtF
yxdL_1	ABC transporter ATP-binding protein YxdL
yxdL_2	ABC transporter ATP-binding protein YxdL
yxdL_3	ABC transporter ATP-binding protein YxdL
yxeN	putative amino-acid permease protein YxeN
yxIF_1	putative ABC transporter ATP-binding protein YxIF
yxIF_2	putative ABC transporter ATP-binding protein YxIF
yycB	putative transporter YycB
yycJ	Putative metallo-hydrolase YycJ
znuA_1	High-affinity zinc uptake system binding-protein ZnuA
znuA_2	High-affinity zinc uptake system binding-protein ZnuA
znuB	High-affinity zinc uptake system membrane protein ZnuB
znuC	High-affinity zinc uptake system ATP-binding protein ZnuC
zwf	Glucose-6-phosphate 1-dehydrogenase
argR_2	Arginine repressor
group_138	hypothetical protein
group_143	hypothetical protein
group_1492	hypothetical protein
group_210	hypothetical protein
group_2230	hypothetical protein
group_235	hypothetical protein
group_278	hypothetical protein
group_281	hypothetical protein
group_283	hypothetical protein
group_287	hypothetical protein
group_289	hypothetical protein
group_292	hypothetical protein
group_295	hypothetical protein

group_862	hypothetical protein
Int-Tn	Transposase from transposon Tn916
nanE_1	Putative N-acetylmannosamine-6-phosphate 2-epimerase
norM	Multidrug resistance protein NorM
rbfA	Ribosome-binding factor A
rplD	50S ribosomal protein L4
rpmH	50S ribosomal protein L34
group_10	hypothetical protein
group_2183	hypothetical protein
group_225	Acetyltransferase
group_280	hypothetical protein
group_293	hypothetical protein
group_297	hypothetical protein
group_1303	hypothetical protein
tuf	hypothetical protein
group_124	hypothetical protein
group_66	hypothetical protein
group_298	hypothetical protein
lytA_4	Autolysin
ydcP_1	putative protease YdcP
ydcP_2	putative protease YdcP
group_214	hypothetical protein
group_215	hypothetical protein
prtP	Pil-type proteinase
group_236	hypothetical protein
group_276	Putative endo-beta-N-acetylglucosaminidase
group_294	hypothetical protein
group_182	hypothetical protein
group_288	hypothetical protein
group_290	hypothetical protein
group_275	hypothetical protein

group_34	hypothetical protein
ltrA	Group II intron-encoded protein LtrA
group_300	hypothetical protein
group_38	hypothetical protein
group_47	hypothetical protein
group_240	hypothetical protein
group_266	hypothetical protein
group_71	hypothetical protein
group_144	hypothetical protein
group_184	hypothetical protein
group_28	hypothetical protein
group_192	hypothetical protein
group_15	hypothetical protein
group_286	hypothetical protein
group_155	hypothetical protein
group_20	hypothetical protein
group_260	hypothetical protein
group_2225	hypothetical protein
group_299	hypothetical protein
gatA_2	PTS system galactitol-specific EIIA component
group_284	hypothetical protein
group_271	hypothetical protein
lytB_1	Putative endo-beta-N-acetylglucosaminidase
group_49	hypothetical protein
group_113	hypothetical protein
group_270	hypothetical protein
group_41	hypothetical protein
hlyB_2	Alpha-hemolysin translocation ATP-binding protein HlyB
group_145	hypothetical protein
group_58	hypothetical protein
hlyB_1	Alpha-hemolysin translocation ATP-binding protein HlyB

group_2 hypothetical protein
group_2197 hypothetical protein
group_100 hypothetical protein
group_123 hypothetical protein
group_2198 hypothetical protein
group_98 hypothetical protein
group_151 Alpha-hemolysin translocation ATP-binding protein HlyB
group_201 hypothetical protein
group_110 Elongation factor Tu
group_24 hypothetical protein
group_85 hypothetical protein
group_134 hypothetical protein
group_296 hypothetical protein
group_43 hypothetical protein
group_52 hypothetical protein
group_60 hypothetical protein
group_157 hypothetical protein
group_77 hypothetical protein
group_87 hypothetical protein
group_99 hypothetical protein
group_111 Elongation factor Tu
group_25 hypothetical protein
group_120 PTS system galactitol-specific EIIA component
group_39 hypothetical protein
group_101 hypothetical protein
group_316 hypothetical protein
group_32 hypothetical protein
group_112 hypothetical protein
group_259 hypothetical protein
group_51 hypothetical protein
group_149 Alpha-hemolysin translocation ATP-binding protein HlyB

group_205	hypothetical protein
group_301	hypothetical protein
group_303	hypothetical protein
group_152	hypothetical protein
group_54	hypothetical protein
group_59	hypothetical protein
group_76	hypothetical protein
group_193	hypothetical protein
group_22	hypothetical protein
group_26	hypothetical protein
group_84	hypothetical protein
group_177	hypothetical protein
group_19	hypothetical protein
group_2223	hypothetical protein
group_268	hypothetical protein
epsJ_3	putative glycosyltransferase EpsJ
group_129	hypothetical protein
group_44	hypothetical protein
group_131	Group II intron-encoded protein LtrA
group_163	hypothetical protein
group_181	hypothetical protein
group_97	hypothetical protein
group_139	hypothetical protein
group_23	hypothetical protein
group_27	hypothetical protein
group_153	hypothetical protein
group_160	hypothetical protein
group_203	hypothetical protein
group_313	hypothetical protein
group_36	hypothetical protein
group_45	hypothetical protein

eabC	Blood-group-substance endo-14-beta-galactosidase
group_159	hypothetical protein
group_171	hypothetical protein
group_21	hypothetical protein
group_216	hypothetical protein
group_267	hypothetical protein
group_302	hypothetical protein
group_46	hypothetical protein
group_1	hypothetical protein
group_119	hypothetical protein
group_173	hypothetical protein
group_204	hypothetical protein
group_2224	hypothetical protein
group_48	hypothetical protein
group_7	hypothetical protein
group_137	hypothetical protein
group_18	hypothetical protein
group_233	hypothetical protein
group_30	hypothetical protein
group_317	hypothetical protein
group_319	Putative endo-beta-N-acetylglucosaminidase
group_324	hypothetical protein
group_42	hypothetical protein
group_125	hypothetical protein
group_132	Group II intron-encoded protein LtrA
group_190	Pil-type proteinase
group_213	hypothetical protein
group_31	hypothetical protein
group_325	hypothetical protein
group_55	hypothetical protein
group_75	hypothetical protein

group_83	hypothetical protein
group_89	hypothetical protein
ydcP	putative protease YdcP
group_116	hypothetical protein
group_128	hypothetical protein
group_13	hypothetical protein
group_135	hypothetical protein
group_178	hypothetical protein
group_304	hypothetical protein
group_33	hypothetical protein
group_56	hypothetical protein
group_81	hypothetical protein
group_86	hypothetical protein
group_146	hypothetical protein
group_158	hypothetical protein
group_183	hypothetical protein
group_62	hypothetical protein
group_9	hypothetical protein
group_95	hypothetical protein
group_140	hypothetical protein
group_154	hypothetical protein
group_172	hypothetical protein
group_2180	hypothetical protein
group_273	hypothetical protein
group_29	hypothetical protein
group_315	hypothetical protein
group_63	hypothetical protein
group_8	hypothetical protein
group_82	hypothetical protein
group_11	hypothetical protein
group_114	Elongation factor Tu

group_12 hypothetical protein
group_1302 hypothetical protein
group_133 Group II intron-encoded protein LtrA
group_176 hypothetical protein
group_179 hypothetical protein
group_230 hypothetical protein
group_3 hypothetical protein
group_37 hypothetical protein
group_53 hypothetical protein
group_61 hypothetical protein
group_88 hypothetical protein
group_93 hypothetical protein
group_107 Elongation factor Tu
group_108 Elongation factor Tu
group_117 hypothetical protein
group_121 hypothetical protein
group_16 hypothetical protein
group_170 hypothetical protein
group_185 hypothetical protein
group_202 hypothetical protein
group_206 hypothetical protein
group_2231 hypothetical protein
group_232 hypothetical protein
group_241 hypothetical protein
group_269 hypothetical protein
group_322 hypothetical protein
group_326 hypothetical protein
group_35 hypothetical protein
group_4 hypothetical protein
group_40 hypothetical protein
group_5 hypothetical protein

group_57	hypothetical protein
group_65	hypothetical protein
group_69	hypothetical protein
group_73	hypothetical protein
group_80	hypothetical protein
group_91	hypothetical protein
msbA_2	Lipid A export ATP-binding/permease protein MsbA
cshC	DEAD-box ATP-dependent RNA helicase CshC
dppB	Dipeptide transport system permease protein DppB
group_102	hypothetical protein
group_104	hypothetical protein
group_105	hypothetical protein
group_109	Elongation factor Tu
group_115	hypothetical protein
group_118	hypothetical protein
group_127	hypothetical protein
group_136	hypothetical protein
group_14	hypothetical protein
group_142	hypothetical protein
group_1493	hypothetical protein
group_161	hypothetical protein
group_162	hypothetical protein
group_167	hypothetical protein
group_17	hypothetical protein
group_174	hypothetical protein
group_175	hypothetical protein
group_180	hypothetical protein
group_189	hypothetical protein
group_196	putative glycosyltransferase EpsJ
group_197	putative glycosyltransferase EpsJ
group_212	Alcohol dehydrogenase

group_218 hypothetical protein
group_2182 hypothetical protein
group_222 PTS system lactose-specific EIICB component
group_229 hypothetical protein
group_231 hypothetical protein
group_282 Arginine repressor
group_305 hypothetical protein
group_306 hypothetical protein
group_307 Lactococcin-G-processing and transport ATP-binding protein LagD
group_308 50S ribosomal protein L4
group_309 hypothetical protein
group_310 hypothetical protein
group_311 hypothetical protein
group_312 hypothetical protein
group_314 hypothetical protein
group_318 hypothetical protein
group_320 hypothetical protein
group_321 hypothetical protein
group_323 hypothetical protein
group_327 hypothetical protein
group_328 Immunoglobulin A1 protease
group_329 hypothetical protein
group_331 hypothetical protein
group_332 hypothetical protein
group_50 hypothetical protein
group_6 hypothetical protein
group_64 hypothetical protein
group_67 hypothetical protein
group_68 hypothetical protein
group_70 hypothetical protein
group_72 hypothetical protein

group_74	hypothetical protein
group_78	hypothetical protein
group_79	hypothetical protein
group_863	hypothetical protein
group_92	hypothetical protein
group_94	hypothetical protein
ldh_1	L-lactate dehydrogenase
mfd_2	Transcription-repair-coupling factor
sucB	Dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase

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