

Name	Synonym
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citM	SMD_3550
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-	SMD_3297
-	SMD_1542
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-	SMD_2174
-	SMD_0620
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mdtI	SMD_2492
pstC	SMD_1383
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tRNA-Gln	SMD_3894
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-	SMD_2330
rimI	SMD_0564
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glgA	SMD_2428
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hemD	SMD_0121
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-	SMD_0967
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tRNA-Arg	SMD_1700
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tktA	SMD_3416

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tRNA-Ile	SMD_3763
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arsH	SMD_0134
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gst5	SMD_3746
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zur	SMD_1280
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hisG	SMD_1946
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xylA	SMD_2239
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recA	SMD_1678
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macA	SMD_2659
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actP	SMD_1960
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groEL	SMD_3813
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groES	SMD_3814
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aceA	SMD_0200
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hsIO	SMD_3211
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C4.11	SMD_0274
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ssrS	SMD_3466
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16SrRNA	SMD_4182
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16SrRNA	SMD_0342
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fdnI	SMD_3448
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lytT	SMD_2007
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R	SMD_3281
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16SrRNA	SMD_4187
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prIC	SMD_3679
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xynB	SMD_2233
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tmRNA	SMD_1782
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arsR2	SMD_1494
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smeW	SMD_1765
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virD4	SMD_0920
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trbB	SMD_0922
trbC	SMD_0923
trbD	SMD_0924
trbE	SMD_0925
trbL	SMD_0928
trbF	SMD_0929
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exbB2	SMD_2398
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V	SMD_3287
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5SrRNA	SMD_4178
5SrRNA	SMD_4183

Product	GGL231	
Pro tRNA		4
acetoacetyl-CoA reductase		10
hypothetical protein		1
Mg /citrate complex transporter		16
phosphate-specific outer membrane porin OprP Pyrophosphate-specific		22
hypothetical protein		1
hypothetical protein		1
Leu tRNA		4
hypothetical protein		1
hypothetical protein		1
integral membrane protein		4
major facilitator family transporter		1
hypothetical protein		2
hypothetical protein		1
phosphodiesterase/alkaline phosphatase D		1
biofilm PGA outer membrane secretin PgaA		1
RND efflux system, inner membrane transporter		81
Spermidine export protein mdtI		10
phosphate transport system permease protein PstC (TC 3.A.1.7.1)		9
Spermidine export protein mdtJ		12
Leu tRNA		19
Gln tRNA		7
hypothetical protein		3
hypothetical protein		5
ribosomal-protein-S18p-alanine acetyltransferase		22
endonuclease V		14
PTS system phosphoenolpyruvate-protein phosphotransferase		19
phosphate ABC transporter, periplasmic phosphate-binding protein PstI		22
UDP-N-acetylglucosamine 2-epimerase		6
hypothetical protein		3
hypothetical protein		3
-		4
Lys tRNA		98
Xaa tRNA		124
cytochrome oxidase biogenesis protein Cox11-CtaG, copper delivery tr		1
-		14
Ser/Thr protein phosphatase family protein,UDP-2,3-diacetylglucosamin		1
Cys tRNA		9
hypothetical protein		1
hypothetical protein		2
-		1
CTP:molybdopterin cytidylyltransferase		1
General stress protein		1
Copper resistance protein C precursor		2
1,4-alpha-glucan (glycogen) branching enzyme,GH-13-type		1
glycogen synthase		1
phage capsid scaffolding protein		1
phage major capsid protein		1
major tail tube protein		1
hypothetical protein		17
His tRNA		261

Asn tRNA	7
hypothetical protein	23
hypothetical protein	3
hypothetical protein	3
hypothetical protein	3
Cobalt-zinc-cadmium resistance protein CzcD	42
cytoplasmic protein	5
Phe tRNA	44
hypothetical protein	2
hypothetical protein	6
hypothetical protein	2
hypothetical protein	4
Universal stress protein family	2
iron uptake protein	19
LysR family transcriptional regulator	9
Thr tRNA	9
Mg(2) transport ATPase, P-type	7
biofilm PGA synthesis auxiliary protein PgaD	7
Asp tRNA	419
Cobalt-zinc-cadmium resistance protein CzcD	25
hypothetical protein	5
Leu tRNA	91
Arg tRNA	36
hypothetical protein	3
transmembrane protein	3
RpfN protein	16
Met tRNA	175
hypothetical protein	7
phage-related tail protein	22
glucose-1-phosphate thymidyltransferase	4
hypothetical protein	4
hypothetical protein	9
Pro tRNA	98
Gly tRNA	196
HxlR family transcriptional regulator	6
Oxidoreductase	7
hypothetical protein	22
Arg tRNA	37
hypothetical protein	8
merR family transcriptional regulator	8
Ethidium bromide-methyl viologen resistance protein EmrE	44
hypothetical protein	12
Phe tRNA	318
hypothetical protein	26
hypothetical protein	13
PTS system fructose-specific transporter subunit IIB	15
Gly tRNA	152
Asp tRNA	498
hypothetical protein	40
Pro tRNA	109
transcriptional regulator, PbsX family	103
hypothetical protein	18

hypothetical protein	2
NAD(P) transhydrogenase subunit alpha	13
hypothetical protein	1
hypothetical protein	9
phosphate transport system permease protein PstA (TC 3.A.1.7.1)	8
iron uptake protein	6
aldehyde dehydrogenase	1
type IV fimbrial biogenesis protein FimT	9
ISStmaD5 transposase A	2
pyruvate/2-oxoglutarate dehydrogenase complex,dihydrolipoamide ac	2
hypothetical protein	1
DNA repair protein RadC	1
candidate type III effector Hop protein	1
hypothetical protein	1
mercuric transport protein, MerT	2
Site-specific DNA methylase-like	2
phage capsid and scaffold	1
inner membrane protein	2
Fatty acid desaturase	1
phage replication protein NMA0782	1
glucan 1,4-beta-glucosidase	1
Xylulose kinase	1
ABC transporter permease	4
endonuclease	1
Exodeoxyribonuclease III	1
polyketide cyclase	1
Iron siderophore receptor protein	1
Ferric siderophore transport system, periplasmic binding protein TonB	1
malto-oligosyltrehalose trehalohydrolase	1
hypothetical protein	1
non-heme chloroperoxidase	2
Amidases related to nicotinamidase	1
major facilitator superfamily permease	3
hypothetical protein	7
hypothetical protein	6
hypothetical protein	4
prolyl oligopeptidase family protein	2
hypothetical protein	1
ErfK/YbiS/YcfS/YnhG family protein	1
hypothetical protein	8
hypothetical protein	3
ABC transporter ATP-binding protein	2
ABC transporter permease	2
Secreted and surface protein containing fasciclin-like repeats	5
hypothetical protein	1
-	3
TonB-dependent receptor	2
transcriptional regulator lacI family	90
hypothetical protein	28
Asp tRNA	85
Leu tRNA	1154
Thioredoxin	28

Homoserine/homoserine lactone efflux protein	20
hypothetical protein	26
hypothetical protein	17
benzene 1,2-dioxygenase, ferredoxin protein	58
phenylalanyl-tRNA synthetase subunit beta	38
hypothetical protein	202
hypothetical protein	44
D-alanyl-D-alanine dipeptidase	7
hypothetical protein	26
ATP-dependent DNA ligase	6
TolA protein	18
hypothetical protein	12
multicopper oxidase	6
pyrophosphate-energized proton pump	6
Response regulator BaeR	6
hypothetical protein	17
hypothetical protein	28
Met tRNA	1030
hypothetical protein	16
glyoxalase	5
macrolide-specific efflux protein MacA	5
N-acetyltransferase GCN5	30
hypothetical protein	10
flagellar biosynthesis protein FliQ	15
nitrogen regulation protein NR(I)	15
TonB-dependent receptor	10
flavoredoxin	5
TonB-dependent receptor	5
hypothetical protein	10
Asp tRNA	1351
hypothetical protein	44
hypothetical protein	14
hypothetical protein	27
Ala tRNA	507
glutamine synthetase	22
Ala tRNA	700
Met tRNA	213
integration host factor subunit beta	181
nitrogen regulatory protein P-II	4
glyoxalase	4
chaperone protein hchA	4
flagellar biosynthesis protein FliA	12
TonB-dependent receptor	4
TonB-dependent receptor	4
quinone oxidoreductase	24
phage-related tail protein	4
glutathione S-transferase	4
translation initiation inhibitor, yjgF family	4
Val tRNA	27
C4-dicarboxylate transport protein	19
hypothetical protein	53
hypothetical protein	15

hypothetical protein	15
4Fe-4S ferredoxin	82
NAD(P) transhydrogenase subunit alpha	18
Lys tRNA	14
N-hydroxyarylamine O-acetyltransferase,putative	7
Thr tRNA	3397
hydrolase	17
hypothetical protein	20
phosphate regulon transcriptional regulatory protein PhoB	40
Leu tRNA	10
Secretory lipase precursor	10
malate:quinone oxidoreductase	16
-	16
guanylate kinase	80
Tyr tRNA	1991
LuxR family DNA-binding response regulator	73
protein-tyrosine-phosphatase	22
type IV pilus assembly protein PilZ	67
hypothetical protein	6
Secreted protein containing N-terminal Zinc-dependent carboxypeptidase	6
isochorismatase	3
Conjugative transfer protein TrbI	3
type II/IV secretion system protein TadC,associated with Flp pilus assembly	3
hypothetical protein	3
TonB-dependent receptor Outer membrane receptor for ferrienteroche	3
multidrug ABC transporter permease	21
phosphate transport ATP-binding protein PstB (TC 3.A.1.7.1)	12
ISSmaD3 transposase A	12
hypothetical protein	6
hypothetical protein	6
hypothetical protein	3
1-phosphofructokinase	21
hypothetical protein	6
nicotinamidase family protein YcaC	3
AsnC family transcriptional regulator	12
2,4-dienoyl-CoA reductase	3
HxIR family transcriptional regulator	18
AraC family transcriptional regulator	6
phage tail length tape-measure protein	6
NAD(P)H dehydrogenase (quinone)	3
TonB-dependent receptor	3
hypothetical protein	159
type IV pilin PilA	453
hypothetical protein	32
hypothetical protein	471
TetR family transcriptional regulator	29
phosphatidate cytidyltransferase	29
magnesium and cobalt transport protein CorA	46
pilus biogenesis protein	23
Xylanase	20
nitroreductase	48
transcription termination protein NusA	380

dienelactone hydrolase family protein	14
Arsenate reductase	14
chitinase	14
Tricarboxylate transport transcriptional regulator TctD	42
hypothetical protein	39
4-hydroxythreonine-4-phosphate dehydrogenase	58
acetyltransferase	11
segregation and condensation protein A	52
hypothetical protein	41
cAMP-binding proteins-catabolite gene activator and regulatory subunit	27
hypothetical protein	27
hypothetical protein	8
TetR family transcriptional regulator	8
hypothetical protein	8
CDP-diacylglycerol--glycerol-3-phosphate 3-phosphatidyltransferase	24
Trp tRNA	1608
quinone oxidoreductase	37
Tiorf68 protein	21
type IV pilus biogenesis protein PilM	47
acetyltransferase	86
NLP/P60 family protein	31
hypothetical protein	46
plasmid stabilization system	46
hypothetical protein	97
hypothetical protein	28
triosephosphate isomerase	139
LysR family transcriptional regulator	5
Zinc-regulated outer membrane receptor	5
DNA methylation and regulatory protein Ada	5
Pass1-like protein	5
3-oxoacyl-ACP reductase	5
glycine cleavage system transcriptional activator	10
type IV fimbrial biogenesis protein PilV	42
wall associated protein	27
Gly tRNA	2689
hypothetical protein	39
y4eB gene in pNGR234a	17
transmembrane protein	34
Copper metallochaperone, bacterial analog of Cox17 protein	34
hypothetical protein	24
hypothetical protein	12
Small-conductance mechanosensitive channel	24
Ubiquinol-cytochrome C reductase iron-sulfur subunit	62
glyoxalase/bleomycin resistance protein/dioxygenase precursor	31
hypothetical protein	19
TetR family transcriptional regulator	151
glutaredoxin	73
ribosome maturation factor RimP	306
ISStmaD2 Transposase B	47
hypothetical protein	35
hypothetical protein	7
hypothetical protein	14

Mlr3171 protein	7
hypothetical protein	7
hypothetical protein	7
flagellar biosynthesis protein FlhB	7
molybdenum cofactor biosynthesis protein MoaA	21
hypothetical protein	7
transcriptional regulator AraC/XylS family, with a AraC_E_bind effecto	7
hypothetical protein	55
Histidinol-phosphatase	16
Histone acetyltransferase HPA2 and related acetyltransferases	16
hypothetical protein	16
3-demethylubiquinone-9 3-methyltransferase	16
integral membrane protein	25
Holliday junction resolvase	50
LysR family transcriptional regulator YbhD	34
Arg tRNA	158
trypsin	9
DNA helicase IV	27
Arginine/ornithine antiporter ArcD	9
GTP pyrophosphokinase	69
ADA regulatory protein / Methylated-DNA--protein-cysteine methyltra	20
twitching motility protein PilH	80
proton/glutamate symport protein Sodium/glutamate symport protein	31
hypothetical protein	11
glyoxalase	22
signal transduction protein with EFhand domain	11
hypothetical protein	22
hypothetical protein	57
hypothetical protein	72
ISStmaD2 Transposase A	52
ArsR family transcriptional regulator	15
phosphatidate cytidyltransferase	167
subtilisin-like serine proteases	64
1-deoxy-D-xylulose 5-phosphate reductoisomerase	113
twitching motility protein PilG	215
Gly tRNA	410
ribosome recycling factor	607
3-ketoacyl-CoA thiolase	89
Ferredoxin	38
nisin-resistance protein	19
hypothetical protein	137
Thr tRNA	99
Organic hydroperoxide resistance protein	44
hypothetical protein	23
hypothetical protein	23
flagellar basal-body rod protein FlgB	46
hypothetical protein	25
Zn-dependent protease with chaperone function	25
Signal peptidase I	181
fimbrial adhesin	269
replicative DNA helicase	97
type I restriction-modification system,DNA-methyltransferase subunit	90

Exodeoxyribonuclease VII small subunit	208
DegT/DnrJ/EryC1/StrS aminotransferase	55
Lactoylglutathione lyase and related lyases	63
hypothetical protein	2
hypothetical protein	2
ISStmaD3 transposase A	4
cytochrome B561	16
TonB-dependent receptor	4
hypothetical protein	28
hypothetical protein	24
RNA polymerase sigma factor	8
inner membrane protein	24
alginate lyase precursor	4
macrolide export ATP-binding/permease MacB	6
multidrug ABC transporter permease	20
Val tRNA	36
DNA topoisomerase III	2
hypothetical protein	2
hypothetical protein	2
hypothetical protein	2
phosphodiesterase/alkaline phosphatase D	4
diguanylate cyclase	2
hypothetical protein	8
D-xylose proton-symporter XylE	2
hypothetical protein	2
DNA-3-methyladenine glycosylase II	2
lipoprotein	2
AtsE	4
Sigma factor, ECF subfamily	10
hypothetical protein	12
hypothetical protein	4
AraC family transcriptional regulator	6
diacylglycerol kinase	6
hypothetical protein	2
merR family transcriptional regulator	8
methyltransferase	2
LysR family transcriptional regulator	14
hypothetical protein	6
FecR protein	2
Siderophore-interacting protein	6
MFS transporter	16
Histidine kinase/response regulator hybrid protein	12
inosine-uridine preferring nucleoside hydrolase	4
phage tail sheath monomer	2
hypothetical protein	14
Sodium/alanine symporter	12
hypothetical protein	74
hypothetical protein	2
LysR family transcriptional regulator PA2877	6
two-component system sensor protein	22
transcriptional regulator	8
hypothetical protein	8

hypothetical protein	40
hypothetical protein	2
RND efflux system, inner membrane transporter	4
Ala tRNA	535
GNAT family acetyltransferase	158
hypothetical protein	55
hypothetical protein	98
7,8-dihydro-8-oxoguanine-triphosphatase	43
short-chain dehydrogenase	43
membrane-associated zinc metalloprotease	84
N-acetyltransferase GCN5	39
hypothetical protein	29
hypothetical protein	164
RND efflux system, outer membrane lipoprotein	163
transport ATP-binding protein CydC	65
RNA polymerase sigma-54 factor RpoN	42
transcription antitermination protein NusG	810
Glu tRNA	1051
ISStmaD4 Transposase	19
YbaK family protein	38
transglycosylase associated protein	125
hypothetical protein	17
methylated-DNA-protein-cysteine S-methyltransferase related protein	17
cellular communication/signal transduction	17
LPS-assembly lipoprotein RlpB precursor (Rare lipoprotein B)	181
ISStmaD2 Transposase B	122
glutamine amidotransferase	15
leucine dehydrogenase	71
inosine-uridine preferring nucleoside hydrolase	121
flagellar motor switch protein FliG	67
transcriptional regulator of pyridoxine metabolism	13
alcohol dehydrogenase	37
NADH ubiquinone oxidoreductase subunit A	707
3-oxoacyl-[acyl-carrier-protein] synthase,KASIII	369
NADH-ubiquinone oxidoreductase subunit I	503
Oar protein	646
uroporphyrinogen-III synthase	11
hypothetical protein	11
bis(5'-nucleosyl)-tetrphosphatase	66
heavy metal RND efflux outer membrane protein,CzcC family	11
FAD-binding monooxygenase	11
NAD(P)H dehydrogenase, quinone family	11
hypothetical protein	11
Regulatory protein CysB	22
hypothetical protein	22
ATP synthase subunit epsilon	716
ribonuclease G	91
hypothetical protein	20
hypothetical protein	60
Arg tRNA	330
major facilitator superfamily (MFS_1) transporter	87
transketolase	268

DNA-3-methyladenine glycosylase	38
type I restriction-modification system, specificity subunit S	94
4-hydroxybenzoyl-CoA thioesterase	121
leucyl-tRNA synthetase	251
hypothetical protein	9
flagellum-specific ATP synthase FliI	36
integral membrane protein	63
diadenosine tetraphosphate (Ap4A) hydrolase and other HIT family hy	63
ferric enterobactin receptor	9
hypothetical protein	90
hypothetical protein	9
L-sorbose dehydrogenase	9
hypothetical protein	61
hypothetical protein	34
hypothetical protein	25
Val tRNA	2168
DNA binding 3-demethylubiquinone-9 3-methyltransferase domain-cor	16
TonB-dependent receptor	142
acyl carrier protein (ACP1)	220
peptidoglycan lipid II flippase MurJ	39
hypothetical protein	58
AsnC family transcriptional regulator	84
type II secretion system protein-like protein	21
-	7
maltodextrin glucosidase	7
hypothetical protein	7
ISStmaD3 transposase B	7
hypothetical protein	21
hypothetical protein	7
hypothetical protein	42
AraC family transcriptional regulator	14
integration host factor subunit alpha	575
hypothetical protein	166
Ile tRNA	952
Arg tRNA	169
1-acyl-sn-glycerol-3-phosphate acyltransferase	59
hypothetical protein	104
beta-ketoadipate enol-lactone hydrolase	26
chemotaxis response regulator containing a CheY-like receiver domain	38
methyl parathion hydrolase	19
hypothetical protein	31
hypothetical protein	110
LuxR family two component transcriptional regulator	36
5,10-methylenetetrahydrofolate reductase	12
Aminodeoxychorismate lyase	12
RND efflux system, outer membrane lipoprotein CmeC	12
carboxymuconolactone decarboxylase family protein	60
stress-responsive transcriptional regulator	24
Sensor histidine kinase	12
hypothetical protein	17
hypothetical protein	17
D-lactate dehydrogenase	17

cytochrome c heme lyase subunit CcmL	61
Gly tRNA	415
aldo-keto reductase	22
hypothetical protein	44
Leader peptidase (Prepilin peptidase)	96
Ala tRNA	42
Glu tRNA	469
hypothetical protein	67
type IV fimbrial assembly protein PilC	77
Cobalt/zinc/cadmium efflux RND transporter, membrane fusion protein	10
hypothetical protein	50
bacteriophage N4 adsorption protein B	5
Cobalt-zinc-cadmium resistance protein CzcA Cation efflux system pro	5
TonB-dependent receptor	5
Gfa-like protein	35
hypothetical protein	20
TonB-dependent receptor	5
hypothetical protein	5
flagellar basal-body rod protein FlgF	85
hypothetical protein	5
hypothetical protein	10
manganese superoxide dismutase	15
DNA binding protein HpkR	20
Ferric siderophore transport system, periplasmic binding protein TonB	5
hypothetical protein	40
hypothetical protein	25
methionine ABC transporter permease	45
hypothetical protein	35
ABC-type Na efflux pump, permease component	20
hypothetical protein	138
Ile tRNA	118
flagellar basal-body rod protein FlgC	58
glyoxalase	89
multidrug ABC transporter permease	23
outer membrane protein	46
peptidyl-prolyl cis-trans isomerase	23
Stringent starvation protein A	108
Bacterioferritin	157
hypothetical protein	39
Imidazole glycerol phosphate synthase amidotransferase subunit	13
ABC transporter involved in cytochrome c biogenesis, CcmB subunit	39
metal-dependent hydrolase	26
FOG: TPR repeat	125
preprotein translocase subunit SecE (TC 3.A.5.1.1)	1253
hypothetical protein	102
hypothetical protein	34
hypothetical protein	34
transcriptional regulator TetR	63
Plasmid replication/partition related protein	82
Poly(Hydroxyalcanoate) granule associated protein	53
protein sirB1	61
phosphate regulon sensor protein PhoR	32

type IV pili signal transduction protein Pill	32
Copper resistance protein B	8
hypothetical protein	32
RND efflux system, outer membrane lipoprotein	8
glutathione S-transferase-like protein	24
Pterin-4-alpha-carbinolamine dehydratase	123
30S ribosomal protein S9	2161
50S m3Psi1915 methyltransferase RlmH	59
3-beta hydroxysteroid dehydrogenase/isomerase family protein in hyp	51
queuosine biosynthesis radical SAM protein QueE	70
hypothetical protein	216
Leu tRNA	395
hypothetical protein	19
hypothetical protein	38
outer membrane protein	38
hypothetical protein	30
Cell division protein BolA	112
response regulator	164
hypothetical protein	52
DNA-binding protein	63
hypothetical protein	85
peptidyl-Asp metalloendopeptidase	33
TonB-dependent receptor	33
hypothetical protein	22
hypothetical protein	11
hypothetical protein	11
Zinc transporter ZupT	36
hypothetical protein	36
LysR family transcriptional regulator YnfL	133
enoyl-CoA hydratase	25
hypothetical protein	14
tRNA-i(6)A37 methylthiotransferase	84
protein crcB	14
phage-related integrase	14
DNA-directed RNA polymerase subunit omega	348
hypothetical protein	183
flagellar protein FljJ	31
beta-lactamase	31
TonB-dependent receptor	51
LysR family transcriptional regulator	17
hypothetical protein	128
TetR family transcriptional regulator	20
glyoxalase	20
hypothetical protein	23
AraC family transcriptional regulator	69
transmembrane protein	23
peroxiredoxin	26
type IV fimbrial assembly, ATPase PilB	55
Kup system potassium uptake protein	58
lipid A biosynthesis lauroyl acyltransferase	90
hypothetical protein	35
aquaporin	117

polysaccharide deacetylase	79
outer membrane usher protein	252
hypothetical protein	47
Ile tRNA	671
inositol-1-monophosphatase	177
Gly tRNA	149
Fimbrial protein precursor	2286
undecaprenyl pyrophosphate synthetase	185
ribonuclease E	203
Ammonium transporter	6
hypothetical protein	3
D-serine/D-alanine/glycine transporter	18
ISShmaD3 transposase B	3
glycosyltransferase	12
autotransporter	9
LuxR family two component transcriptional regulator	6
type II/IV secretion system secretin RcpA/CpaC, associated with Flp pil	3
glucose-methanol-choline (GMC) oxidoreductase:NAD binding site	3
phosphoesterase	36
Thiol-disulfide isomerase and thioredoxins	3
hypothetical protein	15
hypothetical protein	39
Sigma-fimbriae tip adhesin	3
phosphate ABC transporter, periplasmic phosphate-binding protein Pst	3
transcriptional regulator	12
LysR family transcriptional regulator	6
histidinol-phosphate aminotransferase	12
N-acetylglucosamine kinase	48
flagellar motor switch protein FlIM	60
flagellar P-ring protein Flgl	39
BLUF domain containing protein	3
transporter	3
hypothetical protein	3
hypothetical protein	3
ABC-type antimicrobial peptide transport system, permease componen	3
response regulator receiver protein	9
sulfite reductase [NADPH] flavoprotein alpha-component	3
LysR family transcriptional regulator	9
hypothetical protein	15
hypothetical protein	6
hypothetical protein	51
Guanosine-3',5'-bis(Diphosphate) 3'-pyrophosphohydrolase	12
hypothetical protein	30
hypothetical protein	36
transporter	84
preQ0 transporter	33
3-oxoacyl-ACP reductase	6
Baseplate assembly protein J	15
hypothetical protein	60
hypothetical protein	6
formate dehydrogenase O subunit beta	9
hypothetical protein	27

ISStmaD3 transposase (fusion ORF A and B)	3
hypothetical protein	6
KilA-like protein	3
cytochrome O ubiquinol oxidase subunit I	3
hypothetical protein	9
TonB-dependent receptor	3
sensory histidine kinase	12
hypothetical protein	9
hypothetical protein	18
-	21
NADH-ubiquinone oxidoreductase subunit C	580
Bacterioferritin	103
D-alanine--D-alanine ligase	197
Holliday junction DNA helicase RuvA	79
23S rRNA (guanine-N-2-)-methyltransferase rlmL	61
4-hydroxybenzoyl-CoA thioesterase	61
hypothetical protein	58
pili assembly chaperone: Bacterial pili assembly chaperone	492
KlaB protein	52
50S ribosomal protein L13	3277
Oxidoreductase	43
phenylalanine-4-hydroxylase	378
Exodeoxyribonuclease III	163
DNA polymerase III subunit delta'	80
LysR family transcriptional regulator	37
dipeptidase	74
exopolysaccharide synthesis	108
winged helix family two component transcriptional regulator	62
flagellar biosynthesis protein FliL	62
glutathione-dependent thiol reductase	109
hypothetical protein	25
glutamine synthetase	25
Outer membrane vitamin B12 receptor BtuB	22
hypothetical protein	41
D-3-phosphoglycerate dehydrogenase	60
hypothetical protein	19
hypothetical protein	19
hypothetical protein	38
NADH-ubiquinone oxidoreductase subunit B	593
ThiJ/PfpI family protein	35
arabinose 5-phosphate isomerase	67
hypothetical protein	16
flagellar motor rotation protein MotA	64
transcriptional activator AmpR	16
Cold shock protein CspD	1095
FKBP-type peptidyl-prolyl cis-trans isomerase FkpA	511
tRNA(Cytosine32)-2-thiocytidine synthetase	116
hypothetical protein	58
hypothetical protein	113
30S ribosomal protein S20	1596
TetR family transcriptional regulator	81
ECF subfamily RNA polymerase sigma-70 factor	13

ribose-phosphate pyrophosphokinase	286
LysR family transcriptional regulator	52
flagellar biosynthesis protein FlIP	26
proline iminopeptidase	26
nitrilotriacetate monooxygenase component B	39
L-lactate dehydrogenase	26
glutamine amidotransferase	26
drug/metabolite transporter permease	26
hypothetical protein	26
hypothetical protein	72
two-component system sensor protein	36
hydrolase	36
type IV pilus biogenesis protein PilO	59
hypothetical protein	23
regulator PutR for proline utilization, GntR family	46
hypothetical protein	23
hypothetical protein	33
flagellar motor protein	43
flagellar hook-associated protein FlID	116
pyruvate kinase	83
SAM-dependent methyltransferase	30
hypothetical protein	10
ribonuclease HII	70
type IV pilus assembly protein PilF	130
integral membrane protein	10
alcohol dehydrogenase	10
hypothetical protein	30
hypothetical protein	10
hypothetical protein	10
Mn-dependent transcriptional regulator MntR	67
membrane fusion protein of RND family multidrug efflux pump	151
hypothetical protein	235
flagellar L-ring protein FlgH	47
UDP-N-acetylglucosamine--N-acetylmuramyl- (pentapeptide) pyropho:	111
hypothetical protein	37
2-keto-3-deoxy-D-arabino-heptulosonate-7-phosphate synthase II	64
hemolysin related protein	27
alpha-2-macroglobulin	44
hypothetical protein	78
hypothetical protein	34
quaternary ammonium compound-resistance protein sugE	140
RND efflux system, inner membrane transporter CmeB	82
flagellar hook-basal body complex protein FlIE	89
ArsR family transcriptional regulator	24
alpha helix protein	144
gamma-glutamyl phosphate reductase	31
Bacterioferritin	31
ribonucleotide reductase transcriptional regulator NrdR	131
ISSmaD1 Transposase A	69
5-methyltetrahydrofolate--homocysteine methyltransferase	38
amino acid transporter	45
Cob(I)alamin adenosyltransferase PduO	59

CDP-diacylglycerol--glycerol-3-phosphate 3-phosphatidyltransferase	146
Cell division protein FtsQ	167
biopolymer transport protein ExbD/ToIR	94
hypothetical protein	7
Signal transduction histidine kinase	7
outer membrane protein CC_0351 precursor	7
hypothetical protein	7
hypothetical protein	7
hypothetical protein	14
Cobalt/zinc/cadmium efflux RND transporter,membrane fusion protein	7
periplasmic aromatic aldehyde oxidoreductase,molybdenum binding su	7
short-chain dehydrogenase	7
hypothetical protein	7
hypothetical protein	21
hypothetical protein	7
hypothetical protein	35
type IV pilus biogenesis protein PilP	42
hypothetical protein	14
hypothetical protein	14
aspartate carbamoyltransferase	116
Amino acid transporters	74
Putrescine transport system permease protein PotI (TC 3.A.1.11.2)	67
NADH-ubiquinone oxidoreductase subunit K	694
TonB-dependent receptor	39
translation elongation factor LepA	253
AsnC family transcriptional regulator	25
acetylglutamate kinase	50
DNA-binding response regulator	43
external DNA catabolism protein	86
ATP/GTP-binding protein	61
Sec tRNA	61
ribonuclease T	140
phospholipid-binding protein	144
flagellar basal-body rod protein FlgG	90
alpha,alpha-trehalose-phosphate synthase	18
Ferric uptake regulation protein FUR	267
hypothetical protein	130
twitching motility protein PilT	47
hypothetical protein	47
GTP-binding protein TypA/BipA	626
wall associated protein	29
hypothetical protein	58
Na(+) H(+) antiporter subunit C	40
Iron-uptake factor PiuC	51
hypothetical protein	172
Hydroxyacylglutathione hydrolase	183
Arsenic resistance protein ArSH	11
hypothetical protein	33
iron-regulated membrane protein	11
sensor kinase	33
phospholipase C	11
marR family transcriptional regulator	11

Aminoglycoside 3'-phosphotransferase	11
AraC family transcriptional regulator	22
penicillin-insensitive transglycosylase	11
hypothetical protein	33
hypothetical protein	33
lipid A biosynthesis lauroyl acyltransferase	55
50S ribosomal protein L31	1761
glutathione S-transferase	81
hypothetical protein	221
Zinc uptake regulation protein ZUR	178
hypothetical protein	52
cardiolipin synthase	26
hypothetical protein	405
flagellar basal-body rod modification protein FlgD	93
5'-methylthioadenosine phosphorylase	93
flagellar biosynthesis protein FliO	41
hypothetical protein	41
diguanylate cyclase	30
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flagellar M-ring protein FliF	49
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Holliday junction DNA helicase RuvB	117
hypothetical protein	34
hypothetical protein	68
tRNA (5-methyl aminomethyl-2-thiouridylate)-methyltransferase	110
sensor protein	19
hypothetical protein	38
protein phosphatase	46
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7,8-dihydro-8-oxoguanine-triphosphatase	73
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RND efflux transporter	27
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2,4-dienoyl-CoA reductase	8
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UDP-N-acetylmuramoylalanine--D-glutamate ligase	88
hypothetical protein	40
inner membrane protein	8
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wall associated protein	8
hypothetical protein	16
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ABC transporter protein, ATP-binding component	4
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ATP synthase subunit B	1177
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NADH-ubiquinone oxidoreductase subunit F	920
ribosomal RNA large subunit methyltransferase N	277
16S rRNA processing protein RimM	453
acetyl-coenzyme A carboxyl transferase subunit alpha	347
tetraacyldisaccharide 4'-kinase	78
O-methyltransferase	37
beta-lactamase	111
hypothetical protein	33
hypothetical protein	33
TonB-dependent receptor	215

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hypothetical protein	29
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LuxR family transcriptional regulator	54
ATP-dependent RNA helicase RhIE	370
cardiolipin synthetase	25
tripartite multidrug resistance system inner membrane protein	50
LysR family transcriptional regulator	75
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carbamoyl-phosphate synthase large subunit	263
3-demethylubiquinone-9 3-methyltransferase	92
NADH-ubiquinone oxidoreductase subunit J	594
major cold shock protein	373
integral membrane protein	21
multidrug resistance efflux pump	21
metal-dependent hydrolase	105
phosphoethanolamine transferase EptA specific for the 1 phosphate gr	21
hypothetical protein	299
phenylalanyl-tRNA synthetase subunit alpha	139
cell division protein FtsZ	312
23S rRNA (Uracil-5-)-methyltransferase RumA	97
3-oxoacyl-ACP reductase	519
glutamate--cysteine ligase	76
outer membrane lipoprotein	114
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Putrescine transport system permease protein PotH (TC 3.A.1.11.2)	72
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hypothetical protein	208
hypothetical protein	17
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sensor histidine kinase	34
hypothetical protein	51
Arsenate reductase	34
Trehalose-6-phosphate phosphatase	17
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Ferric siderophore transport system, periplasmic binding protein TonB	34
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GTP-binding protein EngB	168
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ISStmaD1 Transposase A	23
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hypothetical protein	134
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acetylornithine deacetylase	79
NAD synthetase	109
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hypothetical protein	5
hypothetical protein	5
drug efflux protein	5
hypothetical protein	5
hypothetical protein	5

nucleotidyl transferase	50
Six-hairpin glycosidase-like protein	5
ABC transporter ATP-binding protein	10
sensor histidine kinase	10
hypothetical protein	75
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glutathione S-transferase	30
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periplasmic aromatic aldehyde oxidoreductase,FAD binding subunit Ya	5
Tryptophan halogenase	5
hypothetical protein	5
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Sterol desaturase	5
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hypothetical protein	5
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DNA polymerase III subunit alpha	131
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ATP synthase subunit beta	1389
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Copper resistance protein C precursor	33
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Epimerase/dehydratase protein	110
L1 beta-lactamase	11
two-component system regulatory protein	11
iron-regulated membrane protein	22
Deoxycytidine triphosphate deaminase	187
N-acyl-L-amino acid amidohydrolase	33
tripartite multidrug resistance system outer membrane protein	22
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30S ribosomal protein S16	2455
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transcription-repair coupling factor	133
hypothetical protein	189
two-component system response regulator	39
cytochrome c heme lyase subunit CcmF	39
tRNA:Cm32/Um32 methyltransferase	78
tryptophan synthase subunit beta	39
1-deoxy-D-xylulose-5-phosphate synthase	190
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hypothetical protein	28
chromosome (plasmid) partitioning protein ParA / Sporulation initiatio	202
moxR-like ATPase	45
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peptidyl-tRNA hydrolase	242
N-succinyl-L,L-diaminopimelate desuccinylase	62
quinolinate phosphoribosyltransferase	141
hypothetical protein	130
hypothetical protein	147
wall associated protein	17
hypothetical protein	17
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Isocitrate dehydrogenase [NAD]	605
hypothetical protein	173
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hypothetical protein	52
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5'-nucleotidase	53
NADH-ubiquinone oxidoreductase subunit G	795
Oxidoreductase	53
ATP synthase subunit A	632
NAD-dependent glyceraldehyde-3-phosphate dehydrogenase	680
glyoxalase	125
3'(2'),5'-bisphosphate nucleotidase	143
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Cobalt-zinc-cadmium resistance protein CzcA Cation efflux system pro	6
cysteine desulfurase	90
sugar phosphate isomerases/epimerases	6
drug/metabolite transporter (DMT) superfamily permease	246
PadR family transcriptional regulator	24
protein-disulfide isomerase	6
Streptomycin 3''-kinase	24
Na /H antiporter NhaD and related arsenite permeases	12
Iron(III) dicitrate transport protein FecA	66
chloride channel protein	18
two-component response regulator	6
N-acetylornithine carbamoyltransferase	66
Lysine 2,3-aminomutase	72
tRNA(Ile)-lysidine synthetase	24
hypothetical protein	24
cationic amino acid transporter	6
DeoR family transcriptional regulator	12
UDP-glucose:sterol glucosyltransferase	18
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ATP synthase subunit alpha	1514
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CTP synthase	212
Aminopeptidase	67
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Pantoate--beta-alanine ligase	149
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hypothetical protein	25
hypothetical protein	138
isoleucyl-tRNA synthetase	176
hypothetical protein	44
3-ketoacyl-CoA thiolase	126
50S ribosomal protein L16	5860
L-Proline/Glycine betaine transporter ProP	19
glutamyl-tRNA synthetase	285
1-acyl-sn-glycerol-3-phosphate acyltransferase	19
glutathione S-transferase	38
tryptophanyl-tRNA synthetase	216
adenine phosphoribosyltransferase	108
TonB protein	51
DNA primase	96
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hypothetical protein	77
hypothetical protein	45
hypothetical protein	180
glycyl-tRNA synthetase subunit alpha	206
translation initiation factor 2	586
50S ribosomal protein L23	5951
UDP-glucose 4-epimerase	432
two-component sensor histidine kinase	13
General secretion pathway protein D / Type II secretion outermembra	39
thymidine phosphorylase	104
hypothetical protein	52
type IV fimbriae expression regulatory protein PilR	91
Rod shape-determining protein RodA	13
DNA polymerase III subunit epsilon	39
Orotidine 5'-phosphate decarboxylase	183
carbamoyl-phosphate synthase small subunit	255
30S ribosomal protein S21	2694
Putrescine transport ATP-binding protein PotG (TC 3.A.1.11.2)	118
GNAT family acetyltransferase	59
Exodeoxyribonuclease III protein AmpN	92
30S ribosomal protein S8	3425
Adenosylmethionine-8-amino-7-oxononanoate aminotransferase	66
hypothetical protein	119
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Iron binding protein SufA for iron-sulfur cluster assembly	159
seryl-tRNA synthetase	186
Phosphoribosylaminoimidazole carboxylase ATPase subunit	213
hypothetical protein	40
ABC transporter ATP-binding protein	20
ribonuclease III	160
hypothetical protein	40

Short chain fatty acids transporter	40
hypothetical protein	20
zinc metalloprotease	67
hypothetical protein	47
acetylxyylan esterase	47
2-octaprenyl-3-methyl-6-methoxy-1,4-benzoquinol hydroxylase	377
hypothetical protein	128
DNA mismatch repair protein MutS	54
ADP-ribosylglycohydrolase family protein	81
Sensory box histidine kinase/response regulator	27
heat shock protein YegD	27
hypothetical protein	129
Histone acetyltransferase HPA2 and related acetyltransferases	34
BLUF domain containing protein	41
oxidoreductase	48
penicillin-binding protein 2 (PBP-2)	48
Cell division protein FtsB	392
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hypothetical protein	442
50S ribosomal protein L35	4075
lipid A export ATP-binding/permease MsbA	111
GTP-binding protein Era	292
hypothetical protein	314
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TonB-dependent receptor	21
prolyl oligopeptidase family protein	70
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Sigma-fimbriae chaperone protein	7
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hydrolase	126
two component sensor	35
hypothetical protein	7
hypothetical protein	14
hypothetical protein	28
autolysin sensor kinase	35
cysteine desulfurase	7
dihydroxy-acid dehydratase	28
NADH-ubiquinone oxidoreductase subunit E	894
FKBP-type peptidyl-prolyl cis-trans isomerase SlyD	486
hypothetical protein	113
tRNA pseudouridine synthase C	92
hypothetical protein	85
Thiamine-monophosphate kinase	78

bis(5'-nucleosyl)-tetrphosphatase	157
membrane fusion protein of RND family multidrug efflux pump	172
NAD kinase	43
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Agmatine deiminase	79
hypothetical protein	36
catalase	36
hypothetical protein	65
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nucleoprotein/polynucleotide-associated enzyme	224
transcription elongation factor GreA	434
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excinuclease ABC subunit B	58
flagellar basal-body P-ring formation protein FlgA	29
alpha-1,2-mannosidase	58
hypothetical protein	80
HNH endonuclease family protein	80
3-oxoacyl-ACP synthase	393
ABC transporter permease	51
transcription elongation factor GreB	51
glycosyl transferase	73
Small-conductance mechanosensitive channel	73
major facilitator superfamily permease	117
ABC transporter ATP-binding protein	22
anhydro-N-acetylmuramic acid kinase	44
hypothetical protein	22
Copper resistance protein D	22
TonB-dependent receptor	22
5-methyltetrahydrofolate--homocysteine methyltransferase	22
argininosuccinate synthase	132
fumarylacetoacetate (FAA) hydrolase	44
ribonuclease PH	88
Ubiquinone biosynthesis monooxygenase UbiB	140
ABC transporter ATP-binding protein	140
ribosomal small subunit pseudouridine synthase A	133
hypothetical protein	111
DNA polymerase III subunit beta	282
transmembrane protein	52
succinyl-CoA ligase subunit alpha	1880
Fructose-bisphosphate aldolase class I	796
Polyribonucleotide nucleotidyltransferase	1374
UDP-glucose dehydrogenase	532
Phosphoribosylformylglycinamide synthase, synthetase subunit	180
hemin transport protein	15
ADP-heptose--lipooligosaccharide heptosyltransferase II	105
membrane-fusion protein	15
soluble lytic murein transglycosylase	15
3-oxoacyl-ACP reductase	15
hypothetical protein	30
Lactate-responsive regulator LldR in Enterobacteria, GntR family	15
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hypothetical protein	15
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hypothetical protein	15
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Polyhydroxyalkanoic acid synthase	68
50S ribosomal protein L1	3409
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hypothetical protein	53
ABC transporter ATP-binding protein	364
carD family transcriptional regulator	91
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hypothetical protein	38
linoleoyl-CoA desaturase (delta(6)-desaturase)	274
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transcriptional regulator of maltose utilization, LacI family	23
hypothetical protein	46
beta-carotene ketolase	23
Cell division protein FtsA	192
UDP-2,3-diacetylglucosamine hydrolase	169
UDP-N-acetylmuramoylalanyl-D-glutamate--2,6-diaminopimelate ligas	162
HlyD family secretion protein	54
translation elongation factor P	818
hypothetical protein	85
tRNA (guanine46-N7-)-methyltransferase	155
Ferric siderophore transport system, periplasmic binding protein TonB	840
3-oxoacyl-ACP synthase	70
Pathogenicity-related protein	47
50S ribosomal protein L29	7740
tRNA dihydrouridine synthase B	55
chromosomal replication initiator protein DnaA	197
hypothetical protein	71
RNA polymerase sigma factor RpoD	587
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dimethyladenosine transferase	112
Trp repressor binding protein	40
3-deoxy-D-manno-octulosonic acid kinase	120
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TonB-dependent receptor	8
LuxR family two component transcriptional regulator	8
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AraC family transcriptional regulator	8
tRNA pseudouridine synthase B	80
dephospho-CoA kinase	56
hypothetical protein	8
hypothetical protein	40
cytochrome O ubiquinol oxidase subunit IV	8

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50S ribosomal protein L19	1896
enolase	129
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hypothetical protein	105
30S ribosomal protein S4	5239
hypothetical protein	89
hypothetical protein	170
ssDNA-specific exonuclease RecJ	65
DNA polymerase III subunit delta	122
aspartyl-tRNA synthetase	236
tripartite multidrug resistance system membrane fusion protein	49
two-component system sensor protein	49
Oxidoreductase	90
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N-acetylmuramoyl-L-alanine amidase	148
Large-conductance mechanosensitive channel	148
Deoxyribonuclease TatD	74
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Diaminohydroxyphosphoribosylaminopyrimidine deaminase	75
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hypothetical protein	1119
phosphoserine aminotransferase	117
Ile tRNA	1188
ATP-dependent DNA helicase RecG	134
ATP-dependent RNA helicase DbpA	84
membrane-bound lytic murein transglycosylase D	126
30S ribosomal protein S7	3741
rRNA small subunit methyltransferase I	59
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DNA-binding response regulator KdpE	26
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hypothetical protein	9
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DNA recombination protein RmuC	92
50S ribosomal protein L20	3377
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Adenylosuccinate lyase	168
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FMN oxidoreductase	66
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aspartate 1-decarboxylase	443
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Aspartokinase	145
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Outer membrane lipoprotein omp16	2226
CoA transferase	184
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Na(+) H(+) antiporter subunit D	39
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NADPH:quinone oxidoreductase	59
50S ribosomal protein L10	6784
ATP-dependent Clp protease ATP-binding subunit ClpX	544
ATP synthase subunit gamma	933
LemA family protein	20
tRNA-guanine transglycosylase	90
Homoserine kinase	10
flagellar hook-associated protein FlgL	70
hypothetical protein	30
hypothetical protein	40
MFS transporter	30
hypoxanthine-guanine phosphoribosyltransferase	220
beta-lactamase	210
RND efflux membrane fusion protein	20
folM Alternative dihydrofolate reductase 1	40
cysteine synthase B	90
hypothetical protein	260
hypothetical protein	20
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hypothetical protein	371
hypothetical protein	121
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phosphoserine phosphatase	92
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DNA gyrase subunit B	309
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hypothetical protein	104
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phosphopantetheine adenylyltransferase	220
thymidine kinase	84
tRNA-specific adenosine-34 deaminase	42
Sensor histidine kinase	21
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50S m5C1962 methyltransferase RlmI	391
N-acetyl-anhydromuramyl-L-alanine amidase	53
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diguanylate cyclase	43
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Mn2-dependent serine/threonine protein kinase	174
Phosphoribosylformylglycinamide cyclo-ligase	185
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TetR family transcriptional regulator	142
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ISStmaD4 Transposase	11
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Rod shape-determining protein MreC	66
Outer membrane lipoprotein Blc	11
Oxidoreductase	55
cardiolipin synthetase	11
Cell division transporter, ATP-binding protein FtsE (TC 3.A.5.1.1)	177
50S ribosomal protein L5	8887
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Lysophospholipase L1 and related esterases	68
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AAA ATPase	114
Fumarate and nitrate reduction regulatory protein	57
Threonyl-tRNA synthetase	502
50S ribosomal protein L9	2149
dipeptidyl carboxypeptidase	149
Osmosensitive K channel histidine kinase KdpD	23
MitA-interacting protein	23
Lactoylglutathione lyase and related lyases	23
dTDP-glucose 4,6-dehydratase	508
type cbb3 cytochrome oxidase biogenesis protein CcoG, involved in Cu	104
GMP synthase	139
glycosyltransferase	429
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hypothetical protein	35
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iojap protein ribosome-associated protein	397
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L-lactate permease	12
Serine protease	24
3-isopropylmalate dehydratase large subunit	12
4-hydroxybenzoate polyprenyltransferase	72
protein-export membrane protein SecD (TC 3.A.5.1.1)	338
hypothetical protein	49
hypothetical protein	49
rRNA small subunit methyltransferase, glucose inhibited division prote	86
Aspartate aminotransferase	123
UDP-N-acetylglucosamine 1-carboxyvinyltransferase	222
phosphogluconate dehydratase	37
formyltetrahydrofolate deformylase	99
DNA ligase	62
phenylalanyl-tRNA synthetase subunit beta	149
octaprenyl-diphosphate synthase	137
two-component response regulator	25
Arylesterase precursor	25
2-amino-3-ketobutyrate coenzyme A ligase	150
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NADH-ubiquinone oxidoreductase subunit M	626
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Isochorismate synthase	13
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Cob(I)alamin adenosyltransferase	78
phosphoglycerate kinase	169
hypothetical protein	13
D-tyrosyl-tRNA(Tyr) deacylase	39
3-dehydroquinate dehydratase	182
dipeptidyl-peptidase	104
50S ribosomal protein L2	5388
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General secretion pathway protein E / Type II secretion cytoplasmic A	53
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Xaa-Pro aminopeptidase	133
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Cold shock protein CspA	2927
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Arginase	123
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Amino acid transporters	55
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glutaredoxin-related protein	167
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LysR family transcriptional regulator	14
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Iron-sulfur cluster assembly ATPase protein SufC	112
hypothetical protein	28
glycine cleavage system transcriptional activator	14
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HrpX related protein	28
LysR family transcriptional regulator	14
hypothetical protein	56
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TetR family transcriptional regulator	14
hypothetical protein	28
hypothetical protein	14
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ATP-dependent RNA helicase RhlB	254
Bacterioferritin-associated ferredoxin	212
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hypothetical protein	131
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TonB-dependent receptor	118
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UDP-N-acetylmuramate:L-alanyl-gamma-D-glutamyl-meso-diaminopir	119
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hypothetical protein	15
ABC-type antimicrobial peptide transport system,permease componen	15
cytochrome c oxidase polypeptide II	15
Outer membrane vitamin B12 receptor BtuB	105
flagellar biosynthesis protein FlhF	45
hypothetical protein	15
N-acetylglutamate synthase	45
hypothetical protein	15
fimbrial protein	137
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S-adenosylmethionine synthetase	306
Xaa-Pro dipeptidase PepQ	92
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ArsR family transcriptional regulator / Methyltransferase	62
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Aspartate aminotransferase	94
hypothetical protein	188
C-di-GMP phosphodiesterase A	47
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3-oxoacyl-ACP reductase	97
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cytochrome c heme lyase subunit CcmH	49
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hypothetical protein	166
Lysine decarboxylase 2, constitutive	169
Septum formation protein Maf	34
Oxidoreductase	17
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AraC family transcriptional regulator	17
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Hydrolase, alpha/beta hydrolase fold family	17
choline-sulfatase	52
hypothetical protein	52
queuosine biosynthesis protein QueD	139
3'-to-5' oligoribonuclease	122
hypothetical protein	157
hypothetical protein	35
alpha/beta hydrolase	193
1-acyl-sn-glycerol-3-phosphate acyltransferase	158
cell division protein MraZ	387
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hypothetical protein	88
cytosolic long-chain acyl-CoA thioester hydrolase family protein	106
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Fumarate hydratase class I, aerobic	269
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choloylglycine hydrolase	18
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D-glycerate 3-kinase	36
integral membrane protein	18
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Ile tRNA	833
methionyl-tRNA synthetase	145
UDP-N-acetylmuramate--L-alanine ligase	273
hydrolase	237
hypothetical protein	73
Methylthioribulose-1-phosphate dehydratase	74
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Polymyxin resistance protein ArnT, undecaprenyl phosphate-alpha-L-A	37
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[protein-PII] uridylyltransferase	113
nuclease	38
Hydrolase, haloacid dehalogenase-like family	247
glutathione-regulated potassium-efflux system protein KefB	19
hypothetical protein	57
hypothetical protein	19
hypothetical protein	38
ISStmaD1 Transposase B	19
GMP synthase	38
cell division protein	153
Optional hypothetical component of the B12 transporter BtuM	134
phosphoglucosamine mutase	268
Gln tRNA	460
Septum formation protein Maf	96
Oligopeptide transporter	116
Fe(2 ⁻)-trafficking protein YggX	58
acid phosphatase	213
ferrichrome-iron receptor	310
succinate dehydrogenase hydrophobic membrane anchor protein	583
ISStmaD1 Transposase A	78
permease	98
Topoisomerase IV subunit B	218
ribosomal large subunit pseudouridine synthase B	179
nitrogen regulation protein NR(I)	40
ISStmaD1 Transposase B	20
di-/tripeptide transporter	60
excinuclease ABC subunit A	20
sal operon transcriptional repressor	20
twin-arginine translocation protein TatA	321
30S ribosomal protein S18	3415
Site-specific tyrosine recombinase	81
drug/metabolite transporter permease	61
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TPR domain-containing protein	1088
succinate dehydrogenase cytochrome b-556 subunit	761
cytochrome O ubiquinol oxidase subunit II	1094
peptidyl-prolyl cis-trans isomerase	992
hypothetical protein	21
Imidazole glycerol phosphate synthase cyclase subunit	21
hypothetical protein	21
integral membrane protein CcmA	84
hypothetical protein	21
LysR family transcriptional regulator	21
ABC transporter ATP-binding protein	337
50S ribosomal protein L24	7120
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enoyl-CoA hydratase	43
5-formyltetrahydrofolate cyclo-ligase	43
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glycerol-3-phosphate acyltransferase	159
hypothetical protein	46
amino acid permease	254
cysteine dioxygenase type I	24
hypothetical protein	24
methyltransferase	48
ABC transporter	96
hypothetical protein	24
GTPase related to EngC	96
tyrosyl-tRNA synthetase	169
Ankyrin repeats containing protein	121
hypothetical protein	75
acyl carrier protein (ACP2)	251
metallopeptidase	201
30S ribosomal protein S14p (S29e) ## Zinc-independent	6009
tRNA pseudouridine 13 synthase	76
L-asparaginase	51
arginyl-tRNA synthetase	281
Ferric siderophore transport system, biopolymer transport protein Exb	155
glutamate synthase [NADPH] large subunit	26
hypothetical protein	26
DNA polymerase IV	26
peptide chain release factor 1	78
membrane protein hemolysin III	52
TetR family transcriptional regulator	78
deoxyuridine 5'-triphosphate nucleotidohydrolase	131
Histone acetyltransferase HPA2 and related acetyltransferases	160
alanine racemase	215
hypothetical protein	27
DNA-binding protein	108
phosphomethylpyrimidine kinase	54
hypothetical protein	54
histone-like nucleoid-structuring protein H-NS	81
RND efflux system, inner membrane transporter CmeB	271
lysine decarboxylase family protein	82
acyl-[acyl-carrier-protein]-UDP-N-acetylglucosamine O-acyltransferase	303
integral membrane protein TerC	167
glucose-1-phosphate thymidyltransferase	530
membrane-bound metallopeptidase	84
hypothetical protein	28
asparagine synthetase	28
twin-arginine translocation protein TatC	85
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cytosine deaminase	86
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Thiol:disulfide interchange protein DsbG precursor	144
L-Proline/Glycine betaine transporter ProP	29
hesA/MoeB/ThiF family protein	146
30S ribosomal protein S6	3243
protein YceG like	59
methyl-accepting chemotaxis protein	59
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biosynthetic arginine decarboxylase	177
hypothetical protein	148
translation initiation inhibitor, yjgF family	363
peptide transport system permease protein sapC (TC 3.A.1.5.5)	152
ssDNA-binding protein	398
O-antigen export system permease protein RfbD	310
betaine aldehyde dehydrogenase	31
periplasmic aromatic amino acid aminotransferase beta precursor	31
TonB-dependent receptor	62
outer membrane protein	125
peptidase	63
hypothetical protein	96
3-methyl-2-oxobutanoate hydroxymethyltransferase	194
Anthranilate synthase, aminase component	97
Osmotically inducible protein	65
hypothetical protein	65
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Non-specific DNA-binding protein Dps / Iron-binding ferritin-like antio	270
tripartite multidrug resistance system outer membrane protein	34
hypothetical protein	34
N-acetyl-D-glucosamine permease	34
hypothetical protein	34
3-hydroxyacyl-CoA dehydrogenase	137
enolase	377
Spectinomycin phosphotransferase	35
hypothetical protein	71
hypothetical protein	72
hypothetical protein	36
sugar ABC transporter, sugar permease protein 2 USSDB1D	36
lipoate synthase	324
hypothetical protein	36
50S ribosomal protein L27	2891
Rhodanese domaincontaining protein	110
superfamily I DNA/RNA helicase protein	37
1,2-dihydroxy-3-keto-5-methylthiopentene dioxygenase	149
ATP synthase subunit C	2486
hypothetical protein	266
hypothetical protein	76
YjeF protein	76
hypothetical protein	76
Recombination protein RecR	77
hypothetical protein	39
AAA ATPase	40
methionine aminopeptidase	40
outer membrane protein	10083

thymidylate synthase	161
Aha1 domain-containing protein	41
oxidoreductase	41
Autolysis response regulator LytR	41
hypothetical protein	83
hypothetical protein	209
tRNA pseudouridine synthase A	126
hypothetical protein	85
riboflavin kinase	129
aminopeptidases	87
Oligopeptide transporter	178
mercuric resistance operon regulatory protein	45
transmembrane DoxX protein	45
short-chain dehydrogenase	45
LacI family transcriptional regulator	45
glycine dehydrogenase [decarboxylating] (glycine cleavage system P ₂)	181
protein export cytoplasm chaperone protein (SecB, maintains protein	831
phospholipase/carboxylesterase family protein	94
malate dehydrogenase	967
dihydrolipoamide acetyltransferase component of pyruvate dehydroge	490
hypothetical protein	50
Response regulator receiver: Metal-dependent phosphohydrolase, HD s	51
carbonic anhydrase, family 3	102
Rhodanese-related sulfurtransferase	468
chemotaxis response-phosphatase CheZ	158
ribosomal large subunit pseudouridine synthase E	53
4-amino-4-deoxy-L-arabinose transferase and related glycosyltransfer	55
cytochrome O ubiquinol oxidase subunit I	1210
excinuclease ABC subunit C	55
ribokinase	224
D-2-hydroxyacid dehydrogenase	56
4-diphosphocytidyl-2-C-methyl-D-erythritol kinase	180
FOG: TPR repeat, SEL1 subfamily	61
dinG family ATP-dependent helicase YoaA	61
octaprenyl-diphosphate synthase	247
tRNA (cytosine34-2'-O-)-methyltransferase	62
50S ribosomal protein L17	1935
hypothetical protein	63
hypothetical protein	63
30S ribosomal protein S1	4358
Topoisomerase IV subunit A	254
ribosome-binding factor A	194
Drug: proton antiporter	65
hypothetical protein	267
phenazine biosynthesis protein PhzF	67
inosine-5'-monophosphate dehydrogenase	134
two-component system regulatory protein	70
hypothetical protein	423
glutamate synthase [NADPH] large subunit	74
ferredoxin II	75
transmembrane protein	78
AMP nucleosidase	159

hypothetical protein	404
ADP-ribose pyrophosphatase	81
dihydrodipicolinate reductase	81
signal transduction histidine kinase	81
ribosomal RNA small subunit methyltransferase C	82
glutamyl-tRNA reductase	87
hypothetical protein	174
ATP-dependent helicase DinG/Rad3	88
short-chain alcohol dehydrogenase	353
Iron-sulfur cluster assembly protein SufD	93
TldD protein	93
LacI family transcriptional regulator	95
lipopolysaccharide core biosynthesis protein	101
4-hydroxybenzoyl-CoA thioesterase	205
dipeptidyl peptidase IV	107
2-C-methyl-D-erythritol 2,4-cyclo diphosphate synthase	111
sulfate transporter, CysZ-type	113
hypothetical protein	115
ATPase	116
LysE family transporter	233
hypothetical protein	118
FimV protein	123
ATPase related to phosphate starvation-inducible protein PhoH	125
Thiol:disulfide interchange protein DsbC	126
YgfY COG2938	130
ribonuclease P protein component	263
Adenosine (5')-pentaphospho-(5'')-adenosine pyrophosphohydrolase	136
30S ribosomal protein S11	4603
dTDP-4-dehydrorhamnose 3,5-epimerase	567
UTP--glucose-1-phosphate uridylyltransferase	297
hypothetical protein	150
ribose 5-phosphate isomerase A	153
50S ribosomal protein L34	2271
type I secretion outer membrane protein, TolC precursor	532
hypothetical protein	180
3-oxoacyl-ACP synthase	390
biotin carboxylase	694
Cell division topological specificity factor MinE	583
4Fe-4S ferredoxin	296
phosphoribosylaminoimidazole carboxylase catalytic subunit	313
Outer membrane protein YfgL, lipoprotein component of the protein as	377
-	0
dipZ protein	0
chromosome (plasmid) partitioning protein ParA	0
hypothetical protein	0
glycosidases	0
Conjugative transfer protein TrbJ	0
Conjugative transfer protein TrbG	0
SAF domain	0
hypothetical protein	0
hypothetical protein	0
hypothetical protein	0

hypothetical protein	0
hypothetical protein	0
plasmid stabilization protein	0
hypothetical protein	0
hypothetical protein	0
hypothetical protein	0
hypothetical protein	0
type IV secretory pathway, VirD4 components	0
PilL protein	0
Plasmid related protein	0
hypothetical protein	0
hypothetical protein	0
hypothetical protein	0
chromosome partitioning ATPase in PFGI-1-like cluster, ParA-like	0
hypothetical protein	0
transcriptional regulator	0
Outer membrane lipoprotein	0
hypothetical protein	0
endonuclease	0
glycosyl transferase, group 2 family protein	0
type 12 methyltransferase	0
hypothetical protein	0
hypothetical protein	0
hypothetical protein	0
bacteriocin resistance protein	0
F420-dependent glucose-6-phosphate dehydrogenase	0
chain A, Crystal Structure Of Thermotoga Maritima 1070	0
Small-conductance mechanosensitive channel	0
hypothetical protein	0
hypothetical protein	0
Pirin	0
Outer membrane receptor for ferric coprogen and ferric-rhodotorulic a	0
hemolysin activation/secretion protein	0
General secretion pathway protein J	0
General secretion pathway protein F	0
General secretion pathway protein K	0
General secretion pathway protein G	0
hypothetical protein	0
hypothetical protein	0
hypothetical protein	0
prepilin peptidase transmembrane protein	0
type II secretion system protein	0
AraC family transcriptional regulator	0
DSBA oxidoreductase	0
marR family transcriptional regulator	0
biofilm PGA synthesis deacetylase PgaB	0
catalase	0
Lytic enzyme	0
phage tail completion protein	0
-	0
tonB-dependent receptor yncD precursor	14
Ku domain-containing protein	1

hypothetical protein	2
hypothetical protein	3
DNA topoisomerase IB (poxvirus type)	1
short-chain dehydrogenase	3
hypothetical protein	35
cardiolipin synthase	60
ISStmaD3 transposase B	3
two-component system sensor protein	60
ABC-type multidrug efflux pump	2
PnuC-like transporter linked to homoserine kinase and OMR	10
malate synthase	3
adenylate cyclase	41
cytochrome C5	40
acyl-CoA hydrolase	56
beta-lactamase related protein	77
drug/metabolite transporter permease	54
ABC-type antimicrobial peptide transport system,permease componen	8
two-component system regulatory protein	21
DNA repair protein RadC	4
LuxR family two component transcriptional regulator	2
ribonuclease BN	42
outer membrane protein	26
hypothetical protein	10
beta-lactamase class C and other penicillin binding proteins	1
hypothetical protein	1
transporter	2
ISStmaD3 transposase A	3
tyrosine recombinase XerD	31
outer membrane protein	2
General secretion pathway protein I	31
hypothetical protein	3
FOG: TPR repeat	3
hypothetical protein	37
ATP-binding component of a transport system and adhesin protein	4
alpha/beta hydrolase	3
autolysin sensor kinase	11
hypothetical protein	38
hemolysin	1
Regulatory protein, LysR:LysR,substrate-binding	10
Sensory box/GGDEF family protein	3
membrane protein	7
polyphosphate kinase	35
hypothetical protein	20
type IV secretory pathway, VirD2 components (relaxase)	2
hypothetical protein	1
RND efflux system, outer membrane lipoprotein,NodT family	3
RND efflux membrane fusion protein	1
LysR family transcriptional regulator	3
hypothetical protein	2
hypothetical protein	21
hypothetical protein	27
Optional hypothetical component of the B12 transporter BtuN	24

major facilitator superfamily permease	3
hypothetical protein	234
hypothetical protein	45
hypothetical protein	25
hypothetical protein	102
phenazine biosynthesis protein PhzF like	58
maltodextrin glucosidase	1
cyclomaltodextrin glucanotransferase	5
multi-domain-containing protein	3
hypothetical protein	6
hypothetical protein	5
general stress protein	10
hypothetical protein	6
dicarboxylate carrier protein	2
malonyl CoA acyl carrier protein transacylase	3
OMR family iron-siderophore receptor precursor	21
alanyl dipeptidyl peptidase	182
succinyl-CoA synthetase subunit alpha	89
hypothetical protein	15
PDZ domain family protein	35
transmembrane sensor	52
autotransporter	8
hypothetical protein	85
two-component response regulator CreB	22
two-component response regulator CreC	14
MFS transporter	12
hypothetical protein	2
ABC transporter ATP-binding protein	38
Sigma-fimbriae tip adhesin	3
Sigma-fimbriae usher protein	1
Leu tRNA	37
DoxX family protein	1
multidrug ABC transporter ATPase	11
ISStmaD1 Transposase B	18
AsI7591 protein	11
Copper resistance protein B	6
RND multidrug efflux membrane fusion protein	1
hypothetical protein	1
hypothetical protein	1
superfamily II DNA/RNA helicases, SNF2 family	1
mercuric ion reductase	4
periplasmic mercury(2) binding protein	10
hypothetical protein	8
hypothetical protein	1
Single-stranded DNA-binding protein in PFGI-1-like cluster	2
hypothetical protein	1
hypothetical protein	4
hypothetical protein	1
hypothetical protein	1
hypothetical protein	2
RecA/RadA recombinase	1
hypothetical protein	1

hypothetical protein	3
XRE family transcriptional regulator	27
hypothetical protein	81
hypothetical protein	7
D-xylose proton-symporter XylE	14
membrane-associated phospholipid phosphatase	119
PsiF repeat-containing protein	24
phytase	3
cytochrome P450	2
LysR family transcriptional regulator	30
transport protein	7
pheromone shutdown protein	95
hypothetical protein	10
hypothetical protein	22
ArsR family transcriptional regulator	27
TetR family transcriptional regulator	39
BLUF domain containing protein	13
hypothetical protein	3
peptidase M20D, amidohydrolase	1
N-acetyltransferase GCN5	1
polar amino acid ABC transporter ATPase	1
ribosomal-protein-S5p-alanine acetyltransferase	5
His repressor	15
Phosphoribosylformimino-5-aminoimidazole carboxamide ribotide ison	16
succinate-semialdehyde dehydrogenase [NAD]	18
acetolactate synthase	20
hypothetical protein	1
chemotaxis protein CheV	75
heavy metal RND efflux outer membrane protein,CzcC family	8
heavy metal resistance transcriptional regulator Hmrr, MerR family	109
cyclopropane-fatty-acyl-phospholipid synthase-like protein, clusters w	1
S-adenosyl-L-methionine dependent methyltransferase	1
hypothetical protein	1
Amine oxidase, flavin-containing	2
RNA polymerase sigma-70 factor	8
hypothetical protein	3
periplasmic aromatic aldehyde oxidoreductase,iron-sulfur subunit Yag ⁻	8
ATP-dependent DNA ligase	1
manganese catalase	1
LmbE-like protein	1
zinc-type alcohol dehydrogenase-like protein ybdR	3
isochorismatase	8
alpha-glucuronidase	2
ABC transporter substrate-binding protein	8
hypothetical protein	3
beta-lactamase class C and other penicillin binding proteins	8
hypothetical protein	6
hypothetical protein	11
hypothetical protein	1
hypothetical protein	1
hypothetical protein	1
hypothetical protein	1

Large exoproteins involved in heme utilization or adhesion	1
RebB protein	2
hypothetical protein	2
hypothetical protein	6
CFA/I fimbrial subunit C precursor	3
hypothetical protein	1
Sensor histidine kinase	20
hypothetical protein	37
hypothetical protein	3
lipoprotein	2
LysR family transcriptional regulator	19
hypothetical protein	5
hypothetical protein	2
General secretion pathway protein H	3
General secretion pathway protein I	2
Filamentous hemagglutinin family outer membrane protein	2
General secretion pathway protein E	1
glycogen debranching enzyme	4
malto-oligosyltrehalose synthase	1
4-alpha-glucanotransferase	4
molybdenum transport ATP-binding protein ModC (TC 3.A.1.8.1)	17
molybdenum cofactor biosynthesis protein MoaE	26
hypothetical protein	7
hypothetical protein	1
outer membrane protein	1
hypothetical protein	11
flavodoxin	16
High-affinity choline uptake protein BetT	33
flp/Fap pilin component	1
flp pilus assembly protein TadB	2
hypothetical protein	20
exoenzymes regulatory protein AepA precursor	1
membrane protein	1
major facilitator superfamily protein	2
LysR family transcriptional regulator	7
ECF subfamily RNA polymerase sigma-70 factor	4
TonB-dependent receptor	3
lipoprotein	3
translation initiation inhibitor	20
hypothetical protein	18
hypothetical protein	67
two-component system protein	5
macrolide export ATP-binding/permease MacB	1
5-Enolpyruvylshikimate-3-phosphate synthase	59
hypothetical protein	3
membrane-bound lytic murein transglycosylase	31
quinoprotein glucose dehydrogenase	2
Plectin 1	16
O-antigen acetylase	62
dihydrolipoamide dehydrogenase of 2-oxoglutarate dehydrogenase	870
hypothetical protein	61
sugar ABC transporter, sugar permease protein 1 USSDB1C	32

transport ATP-binding protein CydD	96
argininosuccinate lyase	67
glutamyl-Q-tRNA synthetase	32
LuxR family two component transcriptional regulator	8
hypothetical protein	4
hypothetical protein	6
Ferric siderophore transport system, periplasmic binding protein TonB	19
hypothetical protein	3
helicase domain-containing protein	2
Pirin-like protein	16
MFS transporter	23
Uroporphyrinogen III decarboxylase	106
cystathionine gamma-synthase	3
FOG: CBS domain	83
chemotaxis protein cheA	81
phage head completion-stabilization protein	1
phage baseplate assembly protein	1
phage-related tail protein	3
hypothetical protein	5
pyruvate oxidase	11
two-component sensor PilS	5
hypothetical protein	43
outer membrane receptor proteins, mostly Fe transport	37
protein BatD	26
alpha-fimbriae chaperone protein	11
alpha-fimbriae usher protein	1
thymidine phosphorylase	64
Iron siderophore sensor protein	12
hypothetical protein	2
Thiamin biosynthesis protein ThiC	11
ketol-acid reductoisomerase	21
SAM-dependent methyltransferase	4
3-isopropylmalate dehydratase small subunit	12
tripartite multidrug resistance system inner membrane protein	1
FOG: GGDEF domain	4
transcriptional regulator	21
N-ethylmaleimide reductase	17
N-acetylglucosamine-regulated TonB-dependent outer membrane rece	50
Osmotically inducible protein OsmY	19
ABC transporter permease	2
ABC transporter ATP-binding protein	2
membrane translocator	4
hypothetical protein	38
hypothetical protein	9
chemotaxis protein	4
hypothetical protein	9
cell division protein FtsX	104
hypothetical protein	25
hypothetical protein	19
Ubiquinone biosynthesis monooxygenase UbiB	6
Potassium efflux system KefA protein / Small-conductance mechanose	29
Oxidoreductase	3

ISStmaD3 transposase A	4
extracellular serine protease	2
cytochrome O ubiquinol oxidase subunit III	5
Thiol-disulfide isomerase and thioredoxins	4
oxidoreductase, Gfo/Idh/MocA family protein	14
aga operon transcriptional repressor	36
chloride channel	8
hypothetical protein	3
hypothetical protein	80
chitin binding protein	10
2-dehydropantoate 2-reductase	41
3-hydroxydecanoyl-ACP dehydratase	87
FAD-binding protein	65
RNA polymerase ECF-type sigma factor	11
hydrolase	60
benzoate transport protein	18
hypothetical protein	17
50S ribosomal protein L25	2790
protein export cytoplasm protein SecA ATPase RNA helicase (TC 3.A.5	298
long-chain fatty acid transport protein	244
glycine cleavage system H protein	808
Septum site-determining protein MinD	561
Outer membrane lipoprotein carrier protein LolA	175
ABC transporter ATP-binding protein	148
hypothetical protein	139
23S rRNA (guanosine-2'-O-)-methyltransferase rlmB	132
ribulose-phosphate 3-epimerase	123
Cell division protein FtsH	233
translation initiation factor 3	2282
FOG: TPR repeat	114
glucans biosynthesis protein D precursor	104
2-amino-4-hydroxy-6-hydroxymethylidihydropteridine pyrophosphokin	101
two-component hybrid sensor and regulator	92
inorganic pyrophosphatase	866
decarboxylase	170
6,7-dimethyl-8-ribityllumazine synthase	254
multimodular transpeptidase-transglycosylase	84
periplasmic thiol:disulfide interchange protein DsbA	84
hypothetical protein	83
helix-turn-helix domain-containing protein	83
Anthranilate synthase, amidotransferase component	77
dihydropteroate synthase	76
NADH-ubiquinone oxidoreductase subunit N	595
membrane protein	74
two-component system sensor protein	74
Sensor histidine kinase	72
hypothetical protein	72
membrane-bound lytic murein transglycosylase D	142
acetylornithine aminotransferase	211
dihydrolipoamide succinyltransferase component (E2) of 2-oxoglutarat	910
histone-like protein	1729
glutathione S-transferase	69

Similarity with glutathionylspermidine synthase	339
Histone acetyltransferase HPA2 and related acetyltransferases	67
chaperone protein hscC (Hsc62)	67
glycosyl transferase	66
shikimate 5-dehydrogenase	129
DNA polymerase III subunit chi	192
peptidoglycan binding protein	64
hypothetical protein	61
Ferredoxin--NADP() reductase	296
4-hydroxy-2-ketovalerate aldolase	58
hypothetical protein	113
pyrroline-5-carboxylate reductase	56
multidrug ABC transporter ATPase	55
DNA-binding protein H-NS	378
hypothetical protein	108
hypothetical protein	54
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate synthase	266
CDP-diacylglycerol pyrophosphatase	53
branched-chain amino acid aminotransferase	211
hypothetical protein	52
lipopolysaccharide core biosynthesis glycosyl transferase	52
hypothetical protein	52
ribonuclease BN	51
cell wall-associated hydrolase	204
cytochrome c4	51
membrane protein, exporter	50
4-Hydroxy-2-oxoglutarate aldolase) / 2-dehydro-3-deoxyphosphogluc	49
type II secretory pathway, ATPase PulE/Tfp pilus assembly pathway, A	49
nucleoside permease NupC	145
biotin synthesis protein bioC	48
hypothetical protein	47
ribosome hibernation protein YhbH	420
Hsp90xo protein	92
serine/threonine kinase	46
protein-L-isoaspartate O-methyltransferase	497
molybdenum ABC transporter, periplasmic molybdenum-binding prote	45
nitrogen regulation protein NtrY	44
LacI family transcriptional regulator	129
hypothetical protein	128
magnesium transporter	42
3-deoxy-D-manno-octulosonic-acid transferase	42
nucleotide sugar epimerase	84
hypothetical protein	83
Response regulator protein	165
Ubiquinone/menaquinone biosynthesis methyltransferase UbiE	408
carbonic anhydrase	122
hypothetical protein	40
Rare lipoprotein A	120
integral membrane protein	39
hypothetical protein	38
2-oxoglutarate dehydrogenase E1 component	753
NADP-dependent malic enzyme	563

OmpA domain-containing protein	111
hypothetical protein	37
chromosome partitioning protein	37
hypothetical protein	37
phnB protein	36
hypothetical protein	108
hypothetical protein	36
N-acetylglucosamine kinase	36
cytochrome c-type biogenesis protein CcmG/DsbE,thiol:disulfide oxido	143
hypothetical protein	71
transcriptional regulator	35
two component transcriptional regulator, winged helix family	35
hypothetical protein	35
marR family transcriptional regulator	70
FOG: PAS/PAC domain	69
N-acetyltransferase GCN5	69
flagellar synthesis regulator FleN	103
General secretion pathway protein K	34
DNA polymerase I	136
30S ribosomal protein S13	4230
hypothetical protein	603
D-amino acid dehydrogenase small subunit	233
excinuclease ABC subunit A	133
cysteine desulfurase	99
hypothetical protein	33
Oxidoreductase	33
acyl-CoA synthetase, AMP-(fatty) acid ligase / (3R)-hydroxymyristoyl-	99
Citrate synthase (si)	1482
transcription accessory protein	98
TonB-dependent receptor	1173
acyltransferase 3	195
N-carbamoylputrescine amidase	225
interferon-induced transmembrane protein	834
hypothetical protein	63
flagellar regulatory protein FleQ	63
hypothetical protein	63
hypothetical protein	63
protein YigP	156
TetR family transcriptional regulator	31
formate dehydrogenase formation protein FdhE	31
cytochrome O ubiquinol oxidase subunit III	1084
rRNA small subunit methyltransferase H	216
Oxidoreductase	339
methylenetetrahydrofolate dehydrogenase (NADP)	92
Ala tRNA	980
2-octaprenyl-6-methoxyphenol hydroxylase	121
D-mannose isomerase	181
hypothetical protein	150
Lactoylglutathione lyase	149
2-amino-4-hydroxy-6-hydroxymethylidihydropteridine pyrophosphokin	89
prolyl-tRNA synthetase	236
hypothetical protein	145

hypothetical protein	87
methionine ABC transporter ATP-binding protein	58
peptide deformylase	261
membrane lipoprotein lipid attachment site containing protein USSDBt	57
hypothetical protein	336
MFS transporter	28
hypothetical protein	112
transmembrane protein	84
iron-regulated membrane protein Iron-uptake factor PiuB	28
Tryptophan 2,3-dioxygenase	56
ATPase provides energy for both assembly of type IV secretion comple	222
glycyl-tRNA synthetase subunit beta	222
DNA topoisomerase I	166
biopolymer transport protein ExbD/ToIR	2500
folate-dependent protein for Fe/S cluster synthesis/repair in oxidative	82
dipeptidyl carboxypeptidase Dcp	408
ATPase	81
cysteine synthase	27
hypothetical protein	537
30S ribosomal protein S12	3259
hypothetical protein	53
hypothetical protein	132
amino acid transporter	103
DNA polymerase III subunit epsilon	179
phosphate-binding protein	51
GAF domain-containing proteins	229
glucose-1-phosphatase	25
sulfur carrier protein ThiS	25
hypothetical protein	75
iron receptor	25
biphenyl-2,3-diol 1,2-dioxygenase	25
RNA binding protein	249
hypothetical protein	272
hypothetical protein	49
export protein	49
hypothetical protein	146
EpiH/GdmH-like protein	73
LuxR family two component transcriptional regulator	216
Pseudouridylate synthase	96
histidyl-tRNA synthetase	216
multidrug resistance protein D	24
hypothetical protein	72
hypothetical protein	70
Ferrochelatase, protoheme ferro-lyase	93
phosphinothricin N-acetyltransferase	116
flagellar biosynthesis protein FliS	185
hypothetical protein	23
outer membrane hemin receptor	23
integrase	46
hypothetical protein	92
chemotaxis protein CheD	46
Aminopeptidase N	230

hypothetical protein	23
hypothetical protein	205
inosine-uridine preferring nucleoside hydrolase	205
Poly(A) polymerase	182
adenylate kinase	455
hypothetical protein	68
isocitrate dehydrogenase	317
hypothetical protein	90
hypothetical protein	335
30S ribosomal protein S2	2536
TfoX C-terminal domain superfamily	111
ankyrin-like protein	111
electron transfer flavoprotein-ubiquinone oxidoreductase	88
Arginine-tRNA-protein transferase	22
TolA protein	153
phosphopantothenoylcysteine decarboxylase	109
ribosomal protein S12p Asp88 methylthiotransferase	151
endonuclease III	43
hypothetical protein	86
exopolysaccharide synthesis	43
hypothetical protein	300
S-adenosylmethionine--tRNA ribosyltransferase-isomerase	64
hypothetical protein	64
hypothetical protein	213
succinate dehydrogenase flavoprotein subunit	894
Aminotransferase, class III	808
Outer membrane protein W precursor	3931
glutathione S-transferase	84
Threonine synthase	21
Cobalt-zinc-cadmium resistance protein	63
hypothetical protein	21
deoxyribonuclease	84
Pirin	21
hypothetical protein	63
acriflavin resistance plasma membrane protein	21
ATP-dependent Clp protease adaptor protein ClpS	185
Para-aminobenzoate synthase, aminase component	41
DNA recombination and repair protein RecF	61
Na(+) H(+) antiporter subunit G	61
motA/TolQ/ExbB proton channel family protein	3141
ABC transporter ATP-binding protein	20
hypothetical protein	40
hypothetical protein	20
TonB-dependent receptor	20
IMP cyclohydrolase	139
ABC transporter ATP-binding protein	99
AmpG permease	79
BarA-associated response regulator UvrY (= GacA = SirA)	138
transglutaminase-like enzymes, putative cysteine proteases	138
hypothetical protein	39
molybdopterin-guanine dinucleotide biosynthesis protein MobB	39
alpha-1,2-mannosidase	136

2-octaprenyl-3-methyl-6-methoxy-1,4-benzoquinol hydroxylase	136
hypothetical protein	116
dolichol-phosphate mannosyltransferase	116
50S ribosomal protein L28	5961
pyridoxal kinase	96
alanyl-tRNA synthetase	249
hypothetical protein	325
amino acid permease	19
malonate decarboxylase subunit alpha	19
Na()/H() antiporter	19
Selenocysteine-specific translation elongation factor	19
cyclic AMP receptor protein	435
tRNA uridine 5-carboxymethylaminomethyl modification protein GidA	113
ATP-dependent DNA helicase UvrD/PcrA	207
TetR family transcriptional regulator	94
Serine protease	75
Fe(2)/alpha-ketoglutarate-dependent dioxygenase LpxO	112
glutamate 5-kinase	37
protein YicC	92
glycine cleavage system transcriptional antiactivator GcvR	257
transcriptional regulator	164
glutamate synthase small subunit	18
ISStmaD1 Transposase B	18
General secretion pathway protein F / Type II secretory pathway, com	36
malonate decarboxylase delta subunit	18
methyl-accepting chemotaxis protein I (serine chemoreceptor protein)	36
hypothetical protein	143
phosphoglucomutase	285
LppC putative lipoprotein	106
major pilus subunit of type IV secretion complex (VirB2)	947
Coproporphyrinogen III oxidase, aerobic	70
gamma-glutamyltranspeptidase	139
two-component system regulatory protein	139
class II fumarate hydratase	52
Na(+) H(+) antiporter subunit F	69
Lactoylglutathione lyase and related lyases	86
hypothetical protein	51
molybdenum transport system permease protein ModB (TC 3.A.1.8.1)	34
hypothetical protein	17
hypothetical protein	17
transamidase GatB domain-containing protein	321
50S ribosomal protein L21	4400
glucosamine-6-phosphate deaminase [isomerizing],alternative	50
hypothetical protein	816
membrane fusion protein of RND family multidrug efflux pump	199
ribosyl nicotinamide transporter, PnuC-like	33
Sensory box/GGDEF family protein	33
phytochrome, two-component sensor histidine kinase	33
TonB-dependent receptor Outer membrane receptor for ferrienteroche	66
alkylated DNA repair protein AlkB	82
hypothetical protein	98
hypothetical protein	49

hypothetical protein	65
dihydrofolate synthase	81
Nonspecific acid phosphatase precursor	97
cytidylate kinase	807
methylglyoxal synthase	48
membrane-bound lytic murein transglycosylase A precursor	48
Osmosensitive K channel histidine kinase KdpD	16
beta-glucosidase	64
PadR family transcriptional regulator	16
hypothetical protein	48
N-acetyltransferase GCN5	80
Iron siderophore receptor protein	16
hypothetical protein	32
2-keto-3-deoxy-D-arabino-heptulosonate-7-phosphate synthase I alpt	143
Gfa-like protein	94
glycosyltransferase	94
cytochrome O ubiquinol oxidase subunit IV	798
lipoprotein	219
General secretion pathway protein H	31
hypothetical protein	31
transcriptional regulator	31
Lysyl-tRNA synthetase, class II	62
hypothetical protein	31
acriflavin resistance plasma membrane protein	31
Oxidoreductase	31
phosphoglycolate phosphatase	139
L-asparaginase	246
hypothetical protein	46
ISStmaD1 Transposase B	46
DNA recombination and repair protein RecO	61
Sensory/regulatory protein rpfC	76
peptidase B	240
mannose-1-phosphate guanylyltransferase	210
Ser/Thr and Tyr protein phosphatase (dual specificity)	15
membrane fusion protein	60
outer membrane protein	194
Ala tRNA	952
two-component system response regulator	192
1-acyl-sn-glycerol-3-phosphate acyltransferase	59
Thioredoxin domain-containing protein EC-YbbN	73
hypothetical protein	73
transcription termination protein NusB	364
carboxypeptidase	29
S-(hydroxymethyl)glutathione dehydrogenase	130
lysyl-tRNA synthetase	389
hypothetical protein	86
hypothetical protein	100
phosphomannomutase	71
GTP pyrophosphokinase	99
dipeptidyl carboxypeptidase Dcp	212
hemerythrin-like protein PA1673	650
DedA protein	113

pyruvate dehydrogenase E1 component	972
Valine--pyruvate aminotransferase	28
hypothetical protein	42
hypothetical protein	28
drug/metabolite transporter permease	14
Ubiquinone biosynthesis monooxygenase UbiB	28
hypothetical protein	14
hypothetical protein	98
signal transduction histidine kinase	140
hypothetical protein	168
Ferric siderophore transport system, periplasmic binding protein TonB	28
N-acetyltransferase GCN5	28
helicase PriA essential for oriC/DnaA-independent DNA replication	56
hypothetical protein	14
methionine aminopeptidase	516
alcohol dehydrogenase	3713
hypothetical protein	125
flavodoxin reductases (ferredoxin-NADPH reductases) family 1	373
hypothetical protein	69
endonuclease	151
biotin--protein ligase	123
LysR-family transcriptional regulator clustered with PA0057	41
glycosyl transferases group 1:TPR repeat	41
Phosphoribosylglycinamide formyltransferase	41
OmpA-like protein	285
sensor histidine kinase	27
N-acetylglucosamine related transporter, NagX	27
6-phosphogluconate dehydrogenase	81
ATP-dependent DNA helicase Rep	94
TldD family protein, Actinobacterial subgroup	67
tRNA delta(2)-isopentenylpyrophosphate transferase	53
L-threonine 3-dehydrogenase	225
Iron-sulfur cluster assembly protein SufB	79
cytosol aminopeptidase	288
hypothetical protein	170
hypothetical protein	39
extracellular protease precursor	26
thymidylate kinase	65
hypothetical protein	52
inosose isomerase	13
PadR family transcriptional regulator	13
two-component response regulator	52
hypothetical protein	13
High-affinity choline uptake protein BetT	13
flagellar biosynthesis protein FliR	13
Ser tRNA	13
3-oxoacyl-ACP reductase	13
hypothetical protein	39
hypothetical protein	13
Colicin I receptor precursor	13
glycerol-3-phosphate dehydrogenase [NAD(P)]	440
Regulatory protein, RpfE type	155

succinyl-diaminopimelate desuccinylase	271
hypothetical protein	51
Sodium/bile acid symporter family	38
sulfur carrier protein adenyltransferase ThiF	38
inner membrane protein YjeT (clustered with HflC)	63
Potassium voltage-gated channel subfamily KQT	63
formate dehydrogenase O subunit alpha	25
hypothetical protein	75
moxR-like ATPase	62
C4-type zinc finger protein, DksA/TraR family	384
orotate phosphoribosyltransferase	395
hypothetical protein	147
hemolysin-like protein	293
inner membrane protein forms channel for type IV secretion of T-DNA	578
hypothetical protein	12
LysR family transcriptional regulator YnfL	24
two-component response regulator	24
hypothetical protein	24
hypothetical protein	12
response regulator	24
hypothetical protein	72
acetyl-CoA carboxylase biotin carboxyl carrier protein	728
hypothetical protein	214
lipoprotein NlpD	249
TIORF34 protein	71
Na(+) H(+) antiporter subunit E	59
NAD-specific glutamate dehydrogenase	744
hypothetical protein	92
multiple sugar ABC transporter ATP-binding protein	46
RNA polymerase sigma-70 factor	46
Tn5044 transposase	23
two-component system regulatory protein	92
hypothetical protein	23
hypothetical protein	217
excisionase domain-containing protein	216
hypothetical protein	465
Dna binding response regulator PrrA (RegA)	136
hypothetical protein	68
hypothetical protein	225
nucleoside-diphosphate-sugar epimerases	56
protein VirB9	235
ribosomal RNA small subunit methyltransferase B	123
RND efflux system, outer membrane lipoprotein, NodT family	145
hypothetical protein	308
transcriptional regulator	11
winged helix family two component transcriptional regulator	11
hypothetical protein	44
signal peptide protein	11
hypothetical protein	55
methyl-accepting chemotaxis protein	11
hypothetical protein	44
DnaJ-class molecular chaperone CbpA	121

RND multidrug efflux transporter Acriflavin resistance protein	33
methyl-accepting chemotaxis protein I (serine chemoreceptor protein)	33
GTPase and tRNA-U34 5-formylation enzyme TrmE	33
LuxR family transcriptional regulator	131
3-dehydroquinate synthase	98
heat-inducible transcription repressor HrcA	43
Tol biopolymer transport system, TolR protein	204
glutathione peroxidase	75
UDP-3-O-[3-hydroxymyristoyl] glucosamine N-acyltransferase	257
dihydrodipicolinate synthase	203
BatA (Bacteroides aerotolerance operon)	32
50S ribosomal protein L36	2249
Putative RNA 2'-O-ribose methyltransferase mtfA	106
glutathione peroxidase	221
hypothetical protein	42
HTH-type transcriptional regulator BetI	21
2-methylcitrate dehydratase	21
fusaric acid resistance protein	21
indole-3-glycerol phosphate synthase	136
Ala tRNA	1672
Rod shape-determining protein MreD	73
formamidopyrimidine-DNA glycosylase	52
hypothetical protein	83
cell division protein FtsK	114
two-component system sensor protein	31
ATP dependent RNA helicase	62
Histidine kinase/response regulator hybrid protein	124
hypothetical protein	31
ABC transporter involved in cytochrome c biogenesis, ATPase component	72
Thioredoxin	102
glutaredoxin-like protein	346
hypothetical protein	61
Positive regulator of CheA protein activity (CheW)	162
2-C-methyl-D-erythritol 4-phosphate cytidylyltransferase	172
heme A synthase, cytochrome oxidase biogenesis protein Cox15-CtaA	121
translation elongation factor P-related protein	413
heme O synthase, protoheme IX farnesyltransferase	141
hypothetical protein	141
hypothetical protein	10
NreB protein	20
transcriptional regulator LiuX of leucine degradation pathway, AcrR family	30
hypothetical protein	100
merR family transcriptional regulator	10
-	10
3-phenylpropionic acid transporter	30
2-isopropylmalate synthase	10
ABC transporter permease	10
G: T/U mismatch-specific uracil/thymine DNA-glycosylase	10
hypothetical protein	30
prolyl oligopeptidase	179
2-methylcitrate dehydratase	119
isovaleryl-CoA dehydrogenase	228

D-alanyl-D-alanine carboxypeptidase	346
TetR family transcriptional regulator	49
acetyl-CoA synthetase	166
hypothetical protein	78
-	494
transcription termination factor Rho	600
Fatty acid desaturase	29
General secretion pathway protein N	29
Sigma factor, ECF subfamily	29
NADH pyrophosphatase	135
ribosomal large subunit pseudouridine synthase C	96
histidine kinase/response regulator hybrid protein	48
Outer membrane lipoprotein LolB precursor	134
carboxypeptidase C (cathepsin A)	38
moxR-like ATPase in aerotolerance operon	95
3-isopropylmalate dehydrogenase	38
di-/tripeptide transporter	303
aromatic-amino-acid aminotransferase	255
hypothetical protein	85
dihydrolipoamide dehydrogenase of pyruvate dehydrogenase complex	376
Phosphoribosylaminoimidazole-succinocarboxamide synthase	75
3,4-dihydroxy-2-butanone 4-phosphate synthase	56
ribosomal protein S6 glutaminyl transferase	28
Putative glycerophosphate (or ribitol phosphate) transferase relatede 1	56
phenylalanine and histidine ammonia-lyase	65
salt-induced outer membrane protein	287
ISStmaD1 Transposase A	37
lipoprotein releasing system transmembrane protein LolC	148
chemotaxis protein	111
AttT protein	37
glycerophosphoryl diester phosphodiesterase	37
hypothetical protein	92
Sensor histidine kinase PrrB (RegB)	101
hypothetical protein	64
hypothetical protein	64
hypothetical protein	109
N-acetylglucosamine-1-phosphate uridylyltransferase	136
Arsenate reductase	18
hypothetical protein	36
hypothetical protein	126
endonuclease distantly related to archaeal Holliday junction resolvase	63
hypothetical protein	9
AraC family transcriptional regulator	18
Similar to ribosomal large subunit pseudouridine synthase A	9
acetyltransferase	18
NAD synthase (glutamine-hydrolysing)	72
Xylosidase/arabinosidase	9
M23/M37 family peptidase	9
choline/carnitine/betaine transporter	18
hypothetical protein	9
MG(2) Chelatase family protein / ComM-related protein	9
Tagatose-6-phosphate kinase AgaZ	9

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chloromuconate cycloisomerase	35
protein-glutamate methyltransferase	70
cytoplasmic copper homeostasis protein cutC	35
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hypothetical protein	52
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GTP cyclohydrolase I	411
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NAD-dependent protein deacetylase	34
General secretion pathway protein J	17
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TonB-dependent receptor	17
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AsnC family transcriptional regulator	17
DNA-binding response regulator	17
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methyl-accepting chemotaxis protein	160
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hypothetical protein	67
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Lead, cadmium, zinc and mercury transporting ATPase	129
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hypothetical protein	8
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hypothetical protein	32
3-oxoacyl-ACP synthase	56
2-octaprenyl-3-methyl-6-methoxy-1,4-benzoquinol hydroxylase	103
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D-lactate dehydrogenase	39
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Lead, cadmium, zinc and mercury transporting ATPase	31
Selenide,water dikinase	54
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Sensory box histidine kinase/response regulator	23
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aconitate hydratase 2	474
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carboxyl-terminal protease	160
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hypothetical protein	38
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prolipoprotein diacylglyceryl transferase	120
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Signal transduction histidine kinase	58
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Ser tRNA	165
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D-alanine--D-alanine ligase	93
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Cobalt-zinc-cadmium resistance protein CzcA Cation efflux system pro	50
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Na /H antiporter	57
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autolysin sensor kinase	14
metallopeptidase	140
protease	7
hypothetical protein	14
Colicin I receptor	35
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LysR family transcriptional regulator	7
hypothetical protein	14
multicopper oxidase	7
hypothetical protein	14
Pirin	7
hypothetical protein	35
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hypothetical protein	7
Iron siderophore sensor protein	7
DNA polymerase III subunit alpha	7
hypothetical protein	49
glucosamine--fructose-6-phosphate aminotransferase	210
Extracellular ribonuclease precursor	7
diguanylate cyclase	21
ferrous iron transport protein	195
hypothetical protein	139
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integral membrane protein	62
superoxide dismutase	172
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3-oxoacyl-ACP reductase	89
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2,3-diketo-5-methylthiopentyl-1-phosphate enolase-phosphatase	185
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glutamate-ammonia-ligase adenyltransferase	39
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Signal transduction histidine kinase	38
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3-hydroxybutyryl-CoA dehydratase	82
3-deoxy-D-manno-octulosonate 8-phosphate phosphatase	145
Outer membrane protein, probably efflux family protein	107
UDP-glucose 4-epimerase	44
Ala tRNA	2342
Lactoylglutathione lyase and related lyases	50
TetR family transcriptional regulator	25
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3-hydroxyanthranilate 3,4-dioxygenase	87
hypothetical protein	31
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hypothetical protein	37
hypothetical protein	37
hypothetical protein	43
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Thiamin-phosphate pyrophosphorylase	49
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hypothetical protein	42
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Plasmid replication initiator protein	6
Redox-sensitive transcriptional activator SoxR	24
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hypothetical protein	6
phosphate transport system regulatory protein PhoU	12
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RpfF protein	36
chemotaxis protein	42
hypothetical protein	6
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hypothetical protein	6
beta-lactamase	24
hypothetical protein	6
IroE protein	30
Threonine dehydratase	6
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TetR family transcriptional regulator	23
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A/G-specific adenine glycosylase	57
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Regulatory protein RecX	193
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Arsenate reductase	17
ABC transporter ATP-binding protein	34
magnesium transporter	17
3-hydroxydecanoyl-ACP dehydratase	553
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Isoaspartyl aminopeptidase	28
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hypothetical protein	39
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GntR family transcriptional regulator domain / Aspartate aminotransferase	11
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SOS-response repressor and protease LexA	329
Small-conductance mechanosensitive channel	93
Co/Zn/Cd efflux system membrane fusion protein	153
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Cobalt-zinc-cadmium resistance protein CzcA Cation efflux system protein	169
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hypothetical protein	81
3-deoxy-manno-octulosonate cytidyltransferase	81
acetyltransferase	27
diaminopimelate epimerase	248
High-affinity iron permease	97

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Copper chaperone	59
N-acetyl-gamma-glutamyl-phosphate reductase	59
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MFS transporter	16
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Aspartokinase	16
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3-oxoacyl-ACP synthase	90
hypothetical protein	259
6-phosphofructokinase	58
chemotaxis protein	79
hypothetical protein	21
hypothetical protein	84
LysR family transcriptional regulator	21
dihydroorotate dehydrogenase	89
Ferrous iron transport protein B	115
phage integrase family site-specific recombinase	47
acetyltransferase	47
hypothetical protein	26
AraC family transcriptional regulator	31
hypothetical protein	191
phosphatidylserine decarboxylase	67
Threonine efflux protein	36
hypothetical protein	41
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Cobalt-zinc-cadmium resistance protein	46
PTS system nitrogen-specific transporter subunit transporter subunit I	92
rifampin ADP-ribosyl transferase	46
hypothetical protein	51
methylglutaconyl-CoA hydratase	56
hypothetical protein	56
hypothetical protein	122
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hypothetical protein	66
hypothetical protein	137
phospholipase/lecithinase/hemolysin	222
electron transfer flavoprotein subunit alpha	363
hypothetical protein	10
major facilitator superfamily permease	10
transcriptional regulator	20
hypothetical protein	10
hypothetical protein	30
Sensory box/GGDEF family protein	20
polypeptide chain release factor methylase	60
protease	45
transglutaminase-like enzymes, putative cysteine proteases	15

transcriptional regulator	25
hypothetical protein	15
nitrilotriacetate monooxygenase component A	5
ATP phosphoribosyltransferase	15
heme ABC transporter, cell surface heme and hemoprotein receptor H	10
hypothetical protein	70
histidine kinase	30
hypothetical protein	5
Xylose isomerase	5
macrophage infectivity potentiator-related protein	5
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DNA polymerase-like protein PA0670	10
Ferric siderophore transport system, periplasmic binding protein TonB	45
ATP-dependent DNA ligase	5
hypothetical protein	5
hypothetical protein	5
Ferric siderophore transport system, periplasmic binding protein TonB	5
motA/TolQ/ExbB proton channel family protein	10
acetolactate synthase large subunit	10
ABC transporter ATP-binding protein	5
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cytochrome oxidase biogenesis protein Sco1/SenC/PrrC copper metall	5
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Threonine dehydratase, catabolic	134
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sulfur carrier protein ThiS	108
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hypothetical protein	52
Na /H exchange protein	47
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superoxide dismutase	202
transaldolase	258

ferrichrome-iron receptor	14
copper amine oxidase N-terminal protein	14
AraC family transcriptional regulator	14
ribonucleotide reductase of class Ia (aerobic),beta subunit	14
NADH dehydrogenase	42
succinyl-CoA: 3-ketoacid-coenzyme A transferase subunit B	186
two-component system regulatory protein	65
hypothetical protein	153
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hypothetical protein	60
hypothetical protein	23
undecaprenyl-diphosphatase	55
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Sel1-like repeat	45
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hypothetical protein	36
Hydroxymethylglutaryl-CoA lyase	63
ABC transporter ATP-binding protein	9
hypothetical protein	18
tRNA/rRNA methyltransferase	81
hypothetical protein	9
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GTP-binding protein HflX	254
hypothetical protein	147
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N-acetylglucosamine-6-phosphate deacetylase	53
LysR family transcriptional regulator	22
exodeoxyribonuclease V subunit alpha	44
nitroreductase	123
hypothetical protein	136
Septum site-determining protein MinC	289
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hypothetical protein	13
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Sortase and related acyltransferases	65
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3-ketoacyl-CoA thiolase	135
beta-glucosidase	45
ribonucleotide reductase of class Ia (aerobic),beta subunit	548
hypothetical protein	151
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metal chaperone, involved in Zn homeostasis, GTPase of COG0523 far	4
Rrf2-linked NADH-flavin reductase	12
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hypothetical protein	32
MFS permease	8
ISStmaD5 transposase B	4
Lead, cadmium, zinc and mercury transporting ATPase	8
protein with ParB-like nuclease domain in PFGI-1-like cluster	4
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Val tRNA	628
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AraC family transcriptional regulator	15
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Nicotinate phosphoribosyltransferase	151
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hypothetical protein	150
hypothetical protein	157
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drug/metabolite transporter permease	7
short chain dehydrogenase	7
Hydroxypyruvate isomerase	7
AAA ATPase	140
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TrbP protein	21
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cyclase family protein	7
transcriptional repressor, Blal/MecI family	14
hypothetical protein	21
moxR family ATPase	52
hypothetical protein	246
transmembrane protein	31
General secretion pathway protein L	48
hypothetical protein	24
biotin synthase	24
hypothetical protein	65
tRNA dihydrouridine synthase A	136
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ATP-dependent protease La	217
alkyl hydroperoxide reductase protein C	1049
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hypothetical protein	164
hypothetical protein	601
acriflavin resistance protein	10
hypothetical protein	170
potassium-transporting ATPase subunit C	10

hypothetical protein	30
copper amine oxidase N-terminal protein	10
hypothetical protein	40
Outer membrane lipoprotein Blc	10
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hypothetical protein	192
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Sensor protein PhoQ	135
ISStmaD1 Transposase B	49
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Rossmann fold nucleotide-binding protein Smf	22
Outer membrane protein W precursor	1992
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maleylacetoacetate isomerase	142
asparagine synthetase	305
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hypothetical protein	799
hypothetical protein	27
Co/Zn/Cd efflux system membrane fusion protein	6
glycosyltransferase	3
Cobalt-zinc-cadmium resistance protein CzcD	15
phnB protein	3
hypothetical protein	36
ABC transporter permease	12
hypothetical protein	12

autotransporter protein	3
hypothetical protein	3
oxidoreductase domain-containing protein	6
hypothetical protein	3
Triphosphoribosyl-dephospho-CoA synthetase	6
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LysE family transporter	18
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glutathione S-transferase	9
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hypothetical protein	3
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TonB-dependent receptor	3
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ArsR family transcriptional regulator	24
TonB-dependent receptor	3
LuxR family transcriptional regulator	6
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Outer membrane protein romA	3
chemotaxis protein	33
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TetR family transcriptional regulator	15
TonB-dependent receptor	3
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RebB protein	3
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thioredoxin-like protein	6
signal transduction histidine kinase	3
2,3-dihydroxybenzoate-AMP ligase	18
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macrolide-specific efflux protein MacA	3
branched-chain alpha-keto acid dehydrogenase, E1 component subunit	6
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phage terminase, endonuclease subunit	3
hypothetical protein	6
hypothetical protein	18
hypothetical protein	3
hypothetical protein	3
General stress protein	3
major facilitator superfamily permease	6
two-component response regulator	3
beta-lactamase	21
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hypothetical protein	98
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chemotaxis protein methyltransferase CheR	38
chaperone protein HtpG	169
PTS system mannose-specific transporter subunit IIA	369
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Glu tRNA	26
transmembrane protein	46
hypothetical protein	126
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DNA repair ATPase	37
Domain often clustered or fused with uracil-DNA glycosylase / Uracil-E	17
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iron-chelator utilization protein	42
two-component response regulator	14
TldE/PmbA protein	53
aconitate hydratase	117
ABC transporter, periplasmic component YrbD	272
hypothetical protein	11
hypothetical protein	11
biopolymer transport protein ExbD/ToIR	11
endonuclease containing a URI domain	22
biotin synthase related domain containing protein	30
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Sigma factor RpoE negative regulatory protein RseA	49
transmembrane protein	76
Ferric siderophore transport system, periplasmic binding protein TonB	19
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Lead, cadmium, zinc and mercury transporting ATPase	16
macrolide export ATP-binding/permease MacB	16
OsmC-like protein	8
hypothetical protein	24
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ABC transporter ATP-binding protein	8
Isocitrate dehydrogenase kinase/phosphatase	8
hypothetical protein	8
Rrf2 family transcriptional regulator	24
4-hydroxyphenylpyruvate dioxygenase	366
beta-lactamase	29
carboxypeptidase	184
RecF protein	76
hypothetical protein	293
propionate--CoA ligase	106
hypothetical protein	5
23S ribosomal RNA	100

O-antigen acetylase	5
-	5
maltose transporter MaIT	5
hypothetical protein	5
ThiJ/PfpI family protein	5
Zona occludens toxin	5
hypothetical protein	5
6-aminohexanoate-dimer hydrolase	5
AraC family transcriptional regulator	15
tripartite multidrug resistance system outer membrane protein	5
LysR family transcriptional regulator	20
translation initiation inhibitor, yjgF family	25
Serine/threonine protein kinase	20
ISStmaD3 transposase B	5
hypothetical protein	15
hypothetical protein	5
ABC transporter, ATP-binding protein YrbF	412
heat shock protein 60 family chaperone GroEL	3174
2-polyprenyl-6-methoxyphenol hydroxylase and related FAD-dependent	42
hypothetical protein	37
membrane-bound metal-dependent hydrolases	32
heat shock protein 60 family co-chaperone GroES	2020
Histidine utilization repressor	49
cytochrome B561	22
hypothetical protein	122
Serine protease MucD/AlgY associated with sigma factor RpoE	129
hypothetical protein	17
hypothetical protein	17
hypothetical protein	29
protease II	87
hypothetical protein	29
hypothetical protein	221
lipoprotein	12
hypothetical protein	55
radical SAM protein	81
hypothetical protein	19
hypothetical protein	26
marR family transcriptional regulator	33
hypothetical protein	40
Isocitrate lyase	7
hypothetical protein	14
General secretion pathway protein M	35
transcriptional regulator	7
Co/Zn/Cd efflux system membrane fusion protein	7
carboxylesterase	14
short-chain dehydrogenase/reductase SDR	21
transmembrane protein	7
hypothetical protein	7
23S ribosomal RNA	105
ATP-dependent RNA helicase	37
ABC transporter, auxiliary component YrbC	550
methylmalonate-semialdehyde dehydrogenase	718

RNA polymerase sigma factor RpoE	159
lipoprotein	317
Azurin	94
hypothetical protein	50
33 kDa chaperonin (Heat shock protein 33) (HSP33)	93
transcriptional regulator	27
Lytic transglycosylase	36
hypothetical protein	9
hypothetical protein	9
hypothetical protein	9
23S ribosomal RNA	110
Lactoylglutathione lyase	20
hypothetical protein	140
-	11
DeoR family transcriptional regulator SmQnrR	33
-	21129
Zn-dependent hydrolases, including glyoxylases	127
16S ribosomal RNA	72
hypothetical protein	61
16S ribosomal RNA	61
23S ribosomal RNA	111
16S ribosomal RNA	76
formiminoglutamic iminohydrolase	26
peptide methionine sulfoxide reductase MsrA	103
RpoH suppressor	30
formate dehydrogenase O subunit gamma	15
clpB protein	171
protein YjbJ	17
regulatory protein	19
chaperone protein DnaK	921
enoyl-CoA hydratase	340
hypothetical protein	33
ISStmaD1 Transposase A	35
hypothetical protein	16
cytochrome oxidase biogenesis protein Surf1, facilitates heme A inserti	4
hypothetical protein	4
outer membrane protein	2
ECF sigma factor	18
plasmid stabilization protein	2
lipoprotein	26
hypothetical protein	2
hypothetical protein	2
hypothetical protein	2
lipoprotein	2
hypothetical protein	6
hypothetical protein	6
malonate decarboxylase subunit beta	16
Sigma-fimbriae chaperone protein	2
type IV secretory pathway, VirB4 components	2
hypothetical protein	4
phage terminase, large subunit	4
hypothetical protein	2

inorganic pyrophosphatase	2
luciferase family protein YtmO, in cluster with L-cystine ABC transport	2
periplasmic binding protein	2
Aminoglycoside N6'-acetyltransferase	12
peripheral-type benzodiazepine receptor	4
oxidoreductase	2
BLUF domain containing protein	2
cheY-like receiver	2
Sialic acid-specific 9-O-acetylerase	2
FMN reductase	4
ABC transporter ATP-binding protein	2
Trehalose synthase	2
Mg(2) transport ATPase protein C	6
ABC transporter ATP-binding protein	2
hypothetical protein	2
abhydrolase, alpha/beta hydrolase fold	4
hypothetical protein	2
pilus assembly protein	4
4-carboxymuconolactone decarboxylase	12
phage terminase, ATPase subunit	2
hypothetical protein	4
hypothetical protein	2
phage tail protein	2
hypothetical protein	18
hypothetical protein	4
GntR family transcriptional regulator domain / Aspartate aminotransfe	4
galactosamine-6-phosphate isomerase	18
ROK domain containing protein	16
16S ribosomal RNA	68
hypothetical protein	4
marR family transcriptional regulator	24
3-hydroxyisobutyryl-CoA hydrolase	264
protein RtcB	65
hypothetical protein	120
hypothetical protein	1379
ATP-dependent hsl protease ATP-binding subunit HslU	264
quaternary ammonium compound-resistance protein sugE	42
-	66575
Imidazolonepropionase	38
-	17
branched-chain acyl-CoA dehydrogenase	534
hypothetical protein	28
3,4-dihydroxy-2-butanone 4-phosphate synthase	79
3-hydroxyisobutyrate dehydrogenase	205
Cytochrome bd2, subunit I	20
membrane protein YeiH	9
oligopeptidase A	63
peptidase S41	9
hypothetical protein	9
heat shock protein GrpE	468
hemin uptake protein	71
glyoxalase	23

hypothetical protein	290
hypothetical protein	5
hypothetical protein	10
nucleoside permease NupG	5
hypothetical protein	5
protein yciF	5
RebB protein	5
GNAT family acetyltransferase	15
hypothetical protein	5
Roadblock/LC7 family protein	5
hypothetical protein	10
hypothetical protein	30
hypothetical protein	5
ATP-dependent protease HsIV	236
hypothetical protein	13
esterase	115
hypothetical protein	8
Phosphoribosyl-dephospho-CoA transferase	8
transcriptional regulator	8
hypothetical protein	19
3-dehydroquinate dehydratase	3
inosine-uridine preferring nucleoside hydrolase	9
hypothetical protein	3
hypothetical protein	3
hypothetical protein	3
hypothetical protein	3
beta-xylosidase	3
cation transport protein	3
hypothetical protein	12
zinc-binding protein	3
Cobalt-zinc-cadmium resistance protein CzcA Cation efflux system pro	3
biopolymer transport protein ExbD/ToIR	3
Aerotaxis sensor receptor protein	3
hypothetical protein	3
homoserine O-acetyltransferase	3
tripartite multidrug resistance system membrane fusion protein	3
RNA polymerase sigma factor RpoH	860
Cytochrome bd2, subunit II	16
2,3-dihydro-2,3-dihydroxybenzoate dehydrogenase	13
N-formylglutamate deformylase	30
hypothetical protein	20
ArsR family transcriptional regulator	17
peptide methionine sulfoxide reductase MsrB	58
cytochrome P450	7
major facilitator superfamily permease	7
membrane protease subunit	158
hypothetical protein	110
hypothetical protein	11
Luciferase-like	66
hypothetical protein	4
peptide methionine sulfoxide reductase MsrA	4
type II/IV secretion system ATP hydrolase TadA/VirB11/CpaF, TadA su	4

hypothetical protein	4
urocanate hydratase	56
histidine ammonia-lyase	69
hypothetical protein	71
deduced tail fiber protein	102
hypothetical protein	43
Ser tRNA	13
5S ribosomal RNA	9
hypothetical protein	132
-	112537
hypothetical protein	5
hypothetical protein	10
hypothetical protein	110
phage minor tail protein	81
hypothetical protein	174
hypothetical protein	283
phage tail assembly protein	83
carbohydrate-binding, CenC-like	89
prophage LambdaSo, lysozyme	227
ArsR family transcriptional regulator	6
hypothetical protein	6
hypothetical protein	6
hypothetical protein	12
minor tail protein	145
deduced tail fiber protein	77
hypothetical protein	219
-	26
mu-like phage tail fiber protein	106
integral membrane protein	116
hypothetical protein	7
hypothetical protein	204
phage tail assembly protein I	130
phage tail fiber protein	138
phage protein	248
phage protein	128
hypothetical protein	137
phage tail fiber protein	89
phage protein	164
hypothetical protein	134
hypothetical protein	434
sulfate permease	99
hypothetical protein	83
hypothetical protein	433
hypothetical protein	179
hypothetical protein	208
hypothetical protein	596
Ser tRNA	80
hypothetical protein	503
hypothetical protein	54
LysR family transcriptional regulator	449
hypothetical protein	287
short-chain dehydrogenase/reductase	1923

RND efflux system, outer membrane lipoprotein CmeC	1477
RND efflux system, membrane fusion protein CmeA	1336
RND efflux system, inner membrane transporter CmeB	1638
short chain dehydrogenase	683
5S ribosomal RNA	4
5S ribosomal RNA	7
hypothetical protein	0
peptide methionine sulfoxide reductase MsrB	0
Signal transduction histidine kinase	1
glycosyltransferase	1
hypothetical protein	0
type IV secretory pathway, protease TraF	0
PE-PGRS FAMILY PROTEIN	2
lipoprotein	3
type IV secretion system protein VirD4	0
CopG domain-containing protein	0
Conjugative transfer protein TrbB	0
Conjugative transfer protein TrbC	0
Conjugative transfer protein TrbD	1
Conjugative transfer protein TrbE	1
Conjugative transfer protein TrbL	1
Conjugative transfer protein TrbF	1
hypothetical protein	0
DoxX family protein	0
signal peptide protein	1
hypothetical protein	0
lipoprotein	0
hypothetical protein	0
hypothetical protein	1
hypothetical protein	1
hypothetical protein	0
Soluble lytic murein transglycosylase and related regulatory proteins (0
hypothetical protein	0
methyl-accepting chemotaxis protein	1
hypothetical protein	0
hypothetical protein	2
hypothetical protein	0
Plasmid-related protein	0
hypothetical protein	1
periplasmic protein TonB, links inner and outer membranes	0
hypothetical protein	0
hypothetical protein	0
hypothetical protein	0
integrase regulator R	1
hypothetical protein	0
hypothetical protein	1
hypothetical protein	1
phage capsid and scaffold	1
hypothetical protein	0
ECF sigma factor	5
FecR protein	0
TonB-dependent receptor	0

FMN reductase	0
hypothetical protein	1
hypothetical protein	0
hypothetical protein	3
cytoplasmic protein (Fragment)	3
protein yciE	2
acyl-CoA dehydrogenase/oxidase domain-containing protein	0
hypothetical protein	0
hypothetical protein	1
hypothetical protein	1
nitrogen regulation protein NR(I)	2
hypothetical protein	0
hypothetical protein	1
RebB protein	4
hypothetical protein	3
hypothetical protein	3
hypothetical protein	0
Oxidoreductase	0
methylglyoxal reductase, acetol producing	3
luciferase-like monooxygenase	1
Copper resistance protein D	1
motA/TolQ/ExbB proton channel family protein	1
phosphate-binding DING protein (related to PstS)	0
General secretion pathway protein D	1
General secretion pathway protein M	1
General secretion pathway protein L	0
extracytoplasmic function	1
outer membrane receptor proteins, mostly Fe transport	1
hypothetical protein	1
Outer membrane protein A precursor	0
hypothetical protein	0
AraC family transcriptional regulator	0
flp pilus assembly protein TadG	0
flp pilus assembly protein RcpC/CpaB	0
flp pilus assembly protein TadD, contains TPR repeats	1
MFS transporter	1
hypothetical protein	1
hypothetical protein	1
AraC family transcriptional regulator	1
hypothetical protein	2
phage-related tail protein	1
signal peptide	1
baseplate assembly protein V	2
alpha-fimbriae major subunit	1
hypothetical protein	0
inner membrane protein YqjF	2
hypothetical protein	2
Roadblock/LC7	0
ATP/GTP-binding protein	1
5S ribosomal RNA	9
5S ribosomal RNA	10

D457 (Wt)	FoldChange	GFC real	Menores de -2	
78	0,05128205	-19,5	tRNA-Pro	tRNA-Pro
155	0,06451613	-15,5	fabG3	fabG3
13	0,07692308	-13	-	SMD_2329
167	0,09580838	-10,4375	citM	citM
211	0,1042654	-9,5909091	-	SMD_3549
9	0,11111111	-9	-	SMD_3297
7	0,14285714	-7	-	SMD_1542
23	0,17391304	-5,75	tRNA-Leu	tRNA-Leu
5	0,2	-5	-	SMD_1017
5	0,2	-5	-	SMD_2174
19	0,21052632	-4,75	-	SMD_0620
4	0,25	-4	-	SMD_0442
8	0,25	-4	-	SMD_0846
4	0,25	-4	-	SMD_2778
4	0,25	-4	phoD	phoD
4	0,25	-4	hmsH	hmsH
319	0,2539185	-3,9382716	smeE	smeE
39	0,25641026	-3,9	mdtI	mdtI
34	0,26470588	-3,7777778	pstC	pstC
45	0,26666667	-3,75	-	SMD_2493
71	0,26760563	-3,7368421	tRNA-Leu	tRNA-Leu
26	0,26923077	-3,7142857	tRNA-Gln	tRNA-Gln
11	0,27272727	-3,6666667	-	SMD_1074
18	0,27777778	-3,6	-	SMD_2330
79	0,27848101	-3,5909091	rimI	rimI
48	0,29166667	-3,4285714	nfi	nfi
64	0,296875	-3,3684211	-	SMD_2225
74	0,2972973	-3,3636364	pstS	pstS
20	0,3	-3,3333333	wecB	wecB
10	0,3	-3,3333333	-	SMD_0621
10	0,3	-3,3333333	-	SMD_1386
13	0,30769231	-3,25	C4.1	C4.1
307	0,31921824	-3,1326531	tRNA-Lys	tRNA-Lys
377	0,32891247	-3,0403226	tRNA-Pseudo	tRNA-Pseudo
3	0,33333333	-3	-	SMD_0361
42	0,33333333	-3	C4.2	C4.2
3	0,33333333	-3	-	SMD_0670
27	0,33333333	-3	tRNA-Cys	tRNA-Cys
3	0,33333333	-3	-	SMD_1599
6	0,33333333	-3	-	SMD_2166
3	0,33333333	-3	C4.5	C4.5
3	0,33333333	-3	-	SMD_2181
3	0,33333333	-3	-	SMD_2205
6	0,33333333	-3	copC2	copC2
3	0,33333333	-3	glgB	glgB
3	0,33333333	-3	glgA	glgA
3	0,33333333	-3	O	O
3	0,33333333	-3	N	N
3	0,33333333	-3	FII	FII
47	0,36170213	-2,7647059	-	SMD_0487
709	0,36812412	-2,7164751	tRNA-His	tRNA-His

19	0,36842105	-2,7142857	tRNA-Asn	tRNA-Asn
62	0,37096774	-2,6956522	-	SMD_2676
8	0,375	-2,6666667	-	SMD_2208
8	0,375	-2,6666667	-	SMD_2394
8	0,375	-2,6666667	-	SMD_3972
111	0,37837838	-2,6428571	-	SMD_1266
13	0,38461538	-2,6	-	SMD_2268
112	0,39285714	-2,5454545	tRNA-Phe	tRNA-Phe
5	0,4	-2,5	-	SMD_0891
15	0,4	-2,5	-	SMD_1436
5	0,4	-2,5	-	SMD_2515
10	0,4	-2,5	-	SMD_3515
5	0,4	-2,5	-	SMD_3572
47	0,40425532	-2,4736842	-	SMD_1396
22	0,40909091	-2,4444444	-	SMD_0198
22	0,40909091	-2,4444444	tRNA-Thr	tRNA-Thr
17	0,41176471	-2,4285714	mgtA	mgtA
17	0,41176471	-2,4285714	hmsS	hmsS
1010	0,41485149	-2,4105012	tRNA-Asp	tRNA-Asp
60	0,41666667	-2,4	czcD	czcD
12	0,41666667	-2,4	-	SMD_3363
216	0,4212963	-2,3736264	tRNA-Leu	tRNA-Leu
85	0,42352941	-2,3611111	tRNA-Arg	tRNA-Arg
7	0,42857143	-2,3333333	-	SMD_2010
7	0,42857143	-2,3333333	-	SMD_3226
37	0,43243243	-2,3125	rpfN	rpfN
404	0,43316832	-2,3085714	tRNA-fMet	tRNA-fMet
16	0,4375	-2,2857143	-	SMD_2197
50	0,44	-2,2727273	I	SMD_3284
9	0,44444444	-2,25	-	SMD_0184
9	0,44444444	-2,25	-	SMD_2661
20	0,45	-2,2222222	-	SMD_3078
217	0,4516129	-2,2142857	tRNA-Pro	tRNA-Pro
425	0,46117647	-2,1683673	tRNA-Gly	tRNA-Gly
13	0,46153846	-2,1666667	-	SMD_1262
15	0,46666667	-2,1428571	-	SMD_2162
47	0,46808511	-2,1363636	-	SMD_1435
79	0,46835443	-2,1351351	tRNA-Arg	tRNA-Arg
17	0,47058824	-2,125	-	SMD_0039
17	0,47058824	-2,125	-	SMD_1996
92	0,47826087	-2,0909091	-	SMD_2935
25	0,48	-2,0833333	-	SMD_2604
662	0,48036254	-2,081761	tRNA-Phe	tRNA-Phe
54	0,48148148	-2,0769231	-	SMD_3160
27	0,48148148	-2,0769231	-	SMD_3797
31	0,48387097	-2,0666667	fruA	fruA
314	0,48407643	-2,0657895	tRNA-Gly	tRNA-Gly
1028	0,4844358	-2,064257	tRNA-Asp	tRNA-Asp
82	0,48780488	-2,05	-	SMD_4121
221	0,49321267	-2,0275229	tRNA-Pro	tRNA-Pro
208	0,49519231	-2,0194175	-	SMD_0893
36	0,5	-2		

4	0,5	-2
26	0,5	-2
2	0,5	-2
18	0,5	-2
16	0,5	-2
12	0,5	-2
2	0,5	-2
18	0,5	-2
4	0,5	-2
4	0,5	-2
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2	0,5	-2
2	0,5	-2
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8	0,5	-2
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2	0,5	-2
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2	0,5	-2
6	0,5	-2
14	0,5	-2
12	0,5	-2
8	0,5	-2
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2	0,5	-2
2	0,5	-2
16	0,5	-2
6	0,5	-2
4	0,5	-2
4	0,5	-2
10	0,5	-2
2	0,5	-2
6	0,5	-2
4	0,5	-2
178	0,50561798	-1,9777778
55	0,50909091	-1,9642857
165	0,51515152	-1,9411765
2237	0,51586947	-1,9384749
54	0,51851852	-1,9285714

38	0,52631579	-1,9
49	0,53061224	-1,8846154
32	0,53125	-1,8823529
109	0,53211009	-1,8793103
71	0,53521127	-1,8684211
377	0,53580902	-1,8663366
82	0,53658537	-1,8636364
13	0,53846154	-1,8571429
48	0,54166667	-1,8461538
11	0,54545455	-1,8333333
33	0,54545455	-1,8333333
22	0,54545455	-1,8333333
11	0,54545455	-1,8333333
11	0,54545455	-1,8333333
11	0,54545455	-1,8333333
31	0,5483871	-1,8235294
51	0,54901961	-1,8214286
1869	0,55109684	-1,8145631
29	0,55172414	-1,8125
9	0,55555556	-1,8
9	0,55555556	-1,8
54	0,55555556	-1,8
18	0,55555556	-1,8
27	0,55555556	-1,8
27	0,55555556	-1,8
18	0,55555556	-1,8
9	0,55555556	-1,8
9	0,55555556	-1,8
18	0,55555556	-1,8
2430	0,55596708	-1,7986677
79	0,55696203	-1,7954545
25	0,56	-1,7857143
48	0,5625	-1,7777778
899	0,56395996	-1,7731755
39	0,56410256	-1,7727273
1236	0,56634304	-1,7657143
376	0,56648936	-1,7652582
318	0,56918239	-1,7569061
7	0,57142857	-1,75
7	0,57142857	-1,75
7	0,57142857	-1,75
21	0,57142857	-1,75
7	0,57142857	-1,75
7	0,57142857	-1,75
42	0,57142857	-1,75
7	0,57142857	-1,75
7	0,57142857	-1,75
7	0,57142857	-1,75
47	0,57446809	-1,7407407
33	0,57575758	-1,7368421
92	0,57608696	-1,7358491
26	0,57692308	-1,7333333

26	0,57692308	-1,7333333
142	0,57746479	-1,7317073
31	0,58064516	-1,7222222
24	0,58333333	-1,7142857
12	0,58333333	-1,7142857
5813	0,58437984	-1,7112158
29	0,5862069	-1,7058824
34	0,58823529	-1,7
68	0,58823529	-1,7
17	0,58823529	-1,7
17	0,58823529	-1,7
27	0,59259259	-1,6875
27	0,59259259	-1,6875
135	0,59259259	-1,6875
3357	0,59308907	-1,6860874
123	0,59349593	-1,6849315
37	0,59459459	-1,6818182
112	0,59821429	-1,6716418
10	0,6	-1,6666667
10	0,6	-1,6666667
5	0,6	-1,6666667
5	0,6	-1,6666667
5	0,6	-1,6666667
5	0,6	-1,6666667
5	0,6	-1,6666667
35	0,6	-1,6666667
20	0,6	-1,6666667
20	0,6	-1,6666667
10	0,6	-1,6666667
10	0,6	-1,6666667
5	0,6	-1,6666667
35	0,6	-1,6666667
10	0,6	-1,6666667
5	0,6	-1,6666667
20	0,6	-1,6666667
5	0,6	-1,6666667
30	0,6	-1,6666667
10	0,6	-1,6666667
10	0,6	-1,6666667
5	0,6	-1,6666667
5	0,6	-1,6666667
265	0,6	-1,6666667
752	0,60239362	-1,6600442
53	0,60377358	-1,65625
780	0,60384615	-1,656051
48	0,60416667	-1,6551724
48	0,60416667	-1,6551724
76	0,60526316	-1,6521739
38	0,60526316	-1,6521739
33	0,60606061	-1,65
79	0,60759494	-1,6458333
625	0,608	-1,6447368

23	0,60869565	-1,6428571
23	0,60869565	-1,6428571
23	0,60869565	-1,6428571
69	0,60869565	-1,6428571
64	0,609375	-1,6410256
95	0,61052632	-1,637931
18	0,61111111	-1,6363636
85	0,61176471	-1,6346154
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256	0,65234375	-1,5329341
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627	0,6539075	-1,5292683
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58	0,67241379	-1,4871795
43	0,6744186	-1,4827586
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41	0,73170732	-1,3666667
153	0,73202614	-1,3660714
224	0,73214286	-1,3658537
71	0,73239437	-1,3653846
86	0,73255814	-1,3650794
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19	0,73684211	-1,3571429
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27	0,74074074	-1,35
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31	0,74193548	-1,3478261
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121	0,74380165	-1,3444444
47	0,74468085	-1,3428571
157	0,74522293	-1,3418803

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63	0,74603175	-1,3404255
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144	0,75694444	-1,3211009
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29	0,75862069	-1,3181818
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21	0,76190476	-1,3125
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76	0,76315789	-1,3103448
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2090	0,76363636	-1,3095238
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76	1,53947368	1,53947368
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174	1,56321839	1,56321839
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41	1,85365854	1,85365854
14	1,85714286	1,85714286
55	1,87272727	1,87272727
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477	1,93081761	1,93081761
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18	1,94444444	1,94444444
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7	2,71428571	2,71428571
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286	3,00699301	3,00699301
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17	3,41176471	3,41176471
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45	3,51111111	3,51111111
31	3,5483871	3,5483871
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17	4,05882353	4,05882353
17	4,17647059	4,17647059
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28	4,71428571	4,71428571
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21	5,23809524	5,23809524
14	5,78571429	5,78571429
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48	5,89583333	5,89583333
14	5,92857143	5,92857143
15	5,93333333	5,93333333
38	5,97368421	5,97368421
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24	6,04166667	6,04166667
12	6,41666667	6,41666667
34	6,44117647	6,44117647
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16	6,625	6,625
17	6,82352941	6,82352941
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29	7,03448276	7,03448276
17	7,64705882	7,64705882
18	7,66666667	7,66666667
32	7,75	7,75
16	8	8
17	8,05882353	8,05882353
11	8,09090909	8,09090909
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15	8,93333333	8,93333333
48	9,04166667	9,04166667
10	9,9	9,9
8	10,375	10,375
38	11,3947368	11,3947368
15	11,93333333	11,93333333
17	12,2352941	12,2352941
48	12,4166667	12,4166667
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3	18	18
17	26,4117647	26,4117647
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14	137,357143	137,357143

Mayores de 2

Pro tRNA	-	SMD_0232	3-hydroxyisobutyryl-CoA hydrolase
acetoacetyl-CrtcB		rtcB	protein RtcB
hypothetical f	-	SMD_0560	hypothetical protein
Mg /citrate cc	-	SMD_0153	hypothetical protein
phosphate-sp hslU		hslU	ATP-dependent hsl protease ATP-binding
hypothetical f sugE		sugE	quaternary ammonium compound-resista
hypothetical f rnpB		rnpB	-
Leu tRNA hutI		hutI	Imidazolonepropionase
hypothetical f C4.8		C4.8	-
hypothetical f	-	SMD_0230	branched-chain acyl-CoA dehydrogenase
integral mem	-	SMD_0394	hypothetical protein
major facilitat ribA		ribA	3,4-dihydroxy-2-butanone 4-phosphate s
hypothetical f mmsB		mmsB	3-hydroxyisobutyrate dehydrogenase
hypothetical f cioA		cioA	Cytochrome bd2, subunit I
phosphodiester	-	SMD_1824	membrane protein YeiH
biofilm PGA o prlC		prlC	oligopeptidase A
RND efflux sy	-	SMD_3727	peptidase S41
Spermidine e	-	SMD_3752	hypothetical protein
phosphate tra grpE		grpE	heat shock protein GrpE
Spermidine e	-	SMD_0678	hemin uptake protein
Leu tRNA	-	SMD_0155	glyoxalase
Gln tRNA	-	SMD_4216	hypothetical protein
hypothetical f	-	SMD_0067	hypothetical protein
hypothetical f	-	SMD_0452	hypothetical protein
ribosomal-prc	-	SMD_1116	nucleoside permease NupG
endonuclease	-	SMD_2194	hypothetical protein
PTS system p	-	SMD_2201	protein yciF
phosphate AE	-	SMD_2288	RebB protein
UDP-N-acetyl	-	SMD_2472	GNAT family acetyltransferase
hypothetical f	-	SMD_2667	hypothetical protein
hypothetical f	-	SMD_2928	Roadblock/LC7 family protein
-	-	SMD_3302	hypothetical protein
Lys tRNA	-	SMD_3671	hypothetical protein
Xaa tRNA	-	SMD_3690	hypothetical protein
cytochrome o hslV		SMD_3662	ATP-dependent protease HslV
-	-	SMD_3743	hypothetical protein
Ser/Thr prote	-	SMD_3264	esterase
Cys tRNA	-	SMD_0172	hypothetical protein
hypothetical f	-	SMD_1149	Phosphoribosyl-dephospho-CoA transfera
hypothetical f	-	SMD_4223	transcriptional regulator
-	-	SMD_0073	hypothetical protein
CTP: molybdo	-	SMD_0193	3-dehydroquinone dehydratase
General stres	-	SMD_0518	inosine-uridine preferring nucleoside hydr
Copper resist	-	SMD_0906	hypothetical protein
1,4-alpha-glu	-	SMD_1377	hypothetical protein
glycogen syni	-	SMD_1610	hypothetical protein
phage capsid	-	SMD_2154	hypothetical protein
phage major xynB		xynB	beta-xylosidase
major tail tub	-	SMD_2302	cation transport protein
hypothetical f	-	SMD_2336	hypothetical protein
His tRNA	-	SMD_2357	zinc-binding protein

Asn tRNA	smmA	smmA	Cobalt-zinc-cadmium resistance protein C
hypothetical f	exbD2	exbD2	biopolymer transport protein ExbD/ToIR
hypothetical f	-	SMD_2429	Aerotaxis sensor receptor protein
hypothetical f	-	SMD_2658	hypothetical protein
hypothetical f	met2	met2	homoserine O-acetyltransferase
Cobalt-zinc-c	-	SMD_3569	tripartite multidrug resistance system me
cytoplasmic p	rpoH	rpoH	RNA polymerase sigma factor RpoH
Phe tRNA	cioB	cioB	Cytochrome bd2, subunit II
hypothetical f	entA	entA	2,3-dihydro-2,3-dihydroxybenzoate dehy
hypothetical f	-	SMD_2692	N-formylglutamate deformylase
hypothetical f	-	SMD_3788	hypothetical protein
hypothetical f	-	SMD_1126	ArsR family transcriptional regulator
Universal stre	msrB	msrB	peptide methionine sulfoxide reductase M
iron uptake p	-	SMD_1774	cytochrome P450
LysR family tr	-	SMD_1908	major facilitator superfamily permease
Thr tRNA	-	SMD_4075	membrane protease subunit
Mg(2) transp	-	SMD_0256	hypothetical protein
biofilm PGA s	-	SMD_1277	hypothetical protein
Asp tRNA	-	SMD_1640	Luciferase-like
Cobalt-zinc-c	-	SMD_0360	hypothetical protein
hypothetical f	msrA	msrA	peptide methionine sulfoxide reductase M
Leu tRNA	-	SMD_0952	type II/IV secretion system ATP hydrolas
Arg tRNA	-	SMD_1758	hypothetical protein
hypothetical f	-	SMD_2693	urocanate hydratase
transmembra	hutH	hutH	histidine ammonia-lyase
RpfN protein	-	SMD_0246	hypothetical protein
Met tRNA	-	SMD_0244	deduced tail fiber protein
hypothetical f	-	SMD_3757	hypothetical protein
phage-relatec	tRNA-Ser	tRNA-Ser	Ser tRNA
glucose-1-ph	5SrRNA	5SrRNA	5S ribosomal RNA
hypothetical f	-	SMD_3265	hypothetical protein
hypothetical f	tmRNA	tmRNA	-
Pro tRNA	-	SMD_0194	hypothetical protein
Gly tRNA	-	SMD_0960	hypothetical protein
HxlR family tr	-	SMD_0243	hypothetical protein
Oxidoreducta	-	SMD_0249	phage minor tail protein
hypothetical f	-	SMD_0254	hypothetical protein
Arg tRNA	-	SMD_3267	hypothetical protein
hypothetical f	-	SMD_0250	phage tail assembly protein
merR family t	-	SMD_0248	carbohydrate-binding, CenC-like
Ethidium bror	-	SMD_3266	prophage LambdaSo, lysozyme
hypothetical f	arsR2	arsR2	ArsR family transcriptional regulator
Phe tRNA	smmB	smmB	hypothetical protein
hypothetical f	-	SMD_2926	hypothetical protein
hypothetical f	-	SMD_3298	hypothetical protein
PTS system fi	-	SMD_0242	minor tail protein
Gly tRNA	-	SMD_0245	deduced tail fiber protein
Asp tRNA	-	SMD_0236	hypothetical protein
hypothetical f	C4.12	C4.12	-
Pro tRNA	-	SMD_0247	mu-like phage tail fiber protein
transcription	-	SMD_4233	integral membrane protein
-	-	SMD_1605	hypothetical protein

-	SMD_0237	hypothetical protein
-	SMD_0251	phage tail assembly protein I
-	SMD_0252	phage tail fiber protein
-	SMD_0238	phage protein
-	SMD_3017	phage protein
-	SMD_3019	hypothetical protein
-	SMD_3015	phage tail fiber protein
-	SMD_0241	phage protein
-	SMD_3018	hypothetical protein
-	SMD_0240	hypothetical protein
-	SMD_0255	sulfate permease
-	SMD_3016	hypothetical protein
-	SMD_3021	hypothetical protein
-	SMD_0253	hypothetical protein
-	SMD_3268	hypothetical protein
-	SMD_0239	hypothetical protein
tRNA-Ser	tRNA-Ser	Ser tRNA
-	SMD_3020	hypothetical protein
-	SMD_1769	hypothetical protein
smeRv	smeRv	LysR family transcriptional regulator
-	SMD_1768	hypothetical protein
smeU2	smeU2	short-chain dehydrogenase/reductase
smeX	smeX	RND efflux system, outer membrane lipoprotein
smeV	smeV	RND efflux system, membrane fusion protein
smeW	smeW	RND efflux system, inner membrane transporter
smeU1	smeU1	short chain dehydrogenase

subunit HslU
ence protein sugE

ynthase

se

rolase

zCA Cation efflux system protein CusA

membrane fusion protein

drogenase

IsrB

IsrA
e TadA/VirB11/CpaF, TadA subfamily

protein CmeC
tein CmeA
porter CmeB