

Appendix 1: *Leptospira* proteins identified in *Leptospira in*

Accession Number	Protein identification	Protein Length (Amino Acids)
24212702	DNA polymerase III subunit beta	373
24212705	DNA gyrase subunit B	639
24212706	DNA gyrase subunit A	834
24212709	hypothetical protein LA_0009	245
24212720	short chain dehydrogenase	248
24212721	translation factor Sua5	203
24212731	hypothetical protein LA_0031	234
24212733	inositol monophosphatase family protein	283
24212740	ribonuclease R	748
24212743	TPR-repeat-containing protein	502
24212745	3-dehydroquinate dehydratase	234
24212751	nucleoside-diphosphate- sugar epimerase	312
24212752	NAD(P)(+) transhydrogenase subunit alpha	389
24212754	histidyl-tRNA synthetase	439
24212756	OmpA family protein	687
24212772	deoxycytidine triphosphate deaminase	174
24212783	diaminopimelate epimerase	281
24212807	hypothetical protein LA_0107	118
24212813	cystathionine gamma- synthase	500
24212824	imidazoleglycerol- phosphate dehydratase/histidinol- phosphatase	206
24212826	phosphoribosylformimin o-5-aminoimidazole carboxamide ribotide isomerase	241
24212827	hypothetical protein LA_0127	404

24212830	phosphomethylpyrimidin e kinase protein	274
24212834	ribosome-associated GTPase	318
24212835	hypothetical protein LA_0135	433
24212841	metal-dependent hydrolase of the beta- lactamase superfamily I	312
24212846	transcriptional regulator	699
24212849	SET domain-containing protein	133
24212853	hypothetical protein LA_0153	489
24212857	chorismate synthase	380
24212860	NADH dehydrogenase (ubiquinone) chain G	482
24212878	preprotein translocase subunit YidC	627
24212879	Jag-like RNA-binding protein	236
24212884	hypothetical protein LA_0184	692
24212885	fumarate hydratase	464
24212918	hypothetical protein LA_0218	510
24212922	OmpA family lipoprotein	195
24212943	cytochrome c oxidase polypeptide I	534
24212950	integral membrane protein with PIN domain	343
24212951	phosphoenolpyruvate carboxykinase	530
24212956	aspartyl/glutamyl-tRNA amidotransferase subunit B	486
24212963	hypothetical protein LA_0263	242
24212972	hypothetical protein LA_0272	337
24212978	hypothetical protein LA_0278	94
24212980	cAMP-binding protein	405

24212984	hypothetical protein LA_0284	231
24213000	ADP-ribose pyrophosphatase	182
24213011	metal-dependent hydrolase	416
24213013	elongation factor G NAD(P)(+)	706
24213035	transhydrogenase subunit beta	466
24213060	glycine dehydrogenase	964
24213065	hypothetical protein LA_0365	553
24213069	ribose-5-phosphate isomerase	145
24213091	ATP-dependent protease ClpA	846
24213101	phosphohistidine phosphatase	160
24213102	ABC transporter ATP- binding protein	304
24213108	tryptophanyl-tRNA synthetase	322
24213111	electron transfer flavoprotein subunit alpha	319
24213112	electron transfer flavoprotein subunit beta	254
24213114	isovaleryl-CoA dehydrogenase	394
24213119	hypothetical protein LA_0419	182
24213138	acyl-CoA dehydrogenase	565
24213147	hypothetical protein LA_0447	56
24213157	acetyl-CoA acetyltransferase	393
24213163	riboflavin synthase subunit beta	151
24213169	isopropylmalate/homocit rate/citramalate synthase	428
24213171	hypothetical protein LA_0471	157
24213194	hypothetical protein LA_0494	231

24213205	hypothetical protein LA_0505	366
24213213	UDP-3-O-[3- hydroxymyristoyl] glucosamine N- acyltransferase	340
24213233	pyridoxal phosphate- dependent aminotransferase	369
24213244	hypothetical protein LA_0544	391
24213246	hypothetical protein LA_0546	841
24213252	periplasmic solute- binding protein	338
24213295	glutathione S-transferase- like protein	209
24213311	cell division protein FtsA	409
24213338	shikimate 5- dehydrogenase	313
24213346	30S ribosomal protein S1	384
24213348	anti-sigma regulatory factor	222
24213349	excinuclease ABC subunit B	666
24213356	mannose-6-phosphate isomerase	330
24213365	metallo-beta-lactamase superfamily protein	321
24213371	citrate synthase	426
24213374	oxidoreductase	514
24213393	aspartate kinase	405
24213420	hypothetical protein LA_0720	249
24213427	carbamoyl phosphate synthase large subunit	1106
24213434	peroxiredoxin-like protein	183
24213437	elongation factor Tu	401
24213438	30S ribosomal protein S10	102
24213439	50S ribosomal protein L3	206
24213440	50S ribosomal protein L4	211

24213441	50S ribosomal protein L23	104
24213442	50S ribosomal protein L2	279
24213444	50S ribosomal protein L22	110
24213445	30S ribosomal protein S3	225
24213446	50S ribosomal protein L16	137
24213451	50S ribosomal protein L5	182
24213452	30S ribosomal protein S14	61
24213453	30S ribosomal protein S8	133
24213454	50S ribosomal protein L6	179
24213455	50S ribosomal protein L18	122
24213458	50S ribosomal protein L15	180
24213460	adenylate kinase	187
24213462	30S ribosomal protein S13	125
24213464	30S ribosomal protein S4	207
24213465	RNA polymerase subunit alpha	325
24213466	50S ribosomal protein L17	171
24213476	L,L-diaminopimelate aminotransferase aspartate	408
24213478	carbamoyltransferase catalytic subunit	320
24213485	Zn-dependent hydrolase	347
24213488	SAM-dependent methyltransferase	315
24213499	cell shape determination protein	146
24213500	pyridoxal phosphate biosynthesis protein	352
24213509	trypsin-like serine protease	388
24213510	Holliday junction DNA helicase B	341
24213527	thioesterase	286

24213533	pantothenate kinase UDP-N-	257
24213538	acetylmuramoylalanine-- D-glutamate ligase	463
24213539	anti-sigma factor antagonist	110
24213540	indole-3-glycerol- phosphate synthase	252
24213545	2-isopropylmalate synthase	298
24213549	50S ribosomal protein L21	104
24213551	50S ribosomal protein L27	84
24213552	GTPase ObgE	357
24213553	gamma-glutamyl kinase	290
24213554	gamma-glutamyl phosphate reductase	416
24213555	nicotinate-nucleotide adenylyltransferase	199
24213562	thiol peroxidase	171
24213573	cytoplasmic membrane protein	423
24213579	hypothetical protein LA_0879	156
24213590	NADH dehydrogenase (ubiquinone) chain F	443
24213592	NADH dehydrogenase (ubiquinone) chain D	405
24213593	NADH dehydrogenase (ubiquinone) chain C	178
24213599	MaoC-like acyl dehydratase	154
24213600	MarR family transcriptional regulator	151
24213603	methylase	543
24213609	methylglyoxal synthase	149
24213613	NHL repeat protein	676
24213618	enoyl-CoA hydratase	266
24213629	enolase-phosphatase	234
24213640	hypothetical protein LA_0940	392
24213642	transcription elongation factor NusA	460
24213647	polynucleotide phosphorylase	699

24213654	hypothetical protein LA_0954	441
24213656	glutamate synthase subunit alpha	1498
24213680	thiamine biosynthesis protein ThiC	495
24213707	glutathione peroxidase	189
24213721	transcription termination factor Rho	482
24213747	diaminopimelate decarboxylase	422
24213753	hypothetical protein LA_1053	136
24213780	aminopeptidase N	884
24213792	hypothetical protein LA_1092	160
24213799	hypothetical protein LA_1099	477
24213801	succinyl-CoA synthetase subunit alpha	291
24213802	succinyl-CoA synthetase subunit beta	390
24213807	hypothetical protein LA_1107	278
24213810	adenylosuccinate synthase	425
24213811	ATP phosphoribosyltransferas e regulatory subunit	344
24213812	glycerol-3-phosphate dehydrogenase	669
24213819	dUTP diphosphatase	145
24213832	hypothetical protein LA_1132	80
24213836	outer membrane lipoprotein-sorting protein	257
24213837	hypothetical protein LA_1137	371
24213838	2-methylthioadenine synthetase	437
24213840	anthranilate phosphoribosyl transferase	336

24213844	pyrimidine deaminase, riboflavin biosynthesis	466
24213847	bifunctional 3,4- dihydroxy-2-butanone 4- phosphate synthase/GTP cyclohydrolase II	402
24213855	sulfate ABC transporter substrate-binding protein	335
24213873	acetyl-CoA synthetase	660
24213874	ABC transporter substrate-binding protein	330
24213881	histidinol-phosphate aminotransferase	370
24213885	signal transduction protein	569
24213890	hypothetical protein LA_1190	313
24213898	3-hydroxybutyryl-CoA dehydratase	257
24213907	thioesterase superfamily protein	140
24213922	dihydrolipoamide acetyltransferase	419
24213923	dihydrolipoamide dehydrogenase	467
24213924	alpha-ketoglutarate decarboxylase	920
24213940	threonyl-tRNA synthetase	639
24213942	translation initiation factor IF-3	179
24213943	50S ribosomal protein L35	67
24213944	50S ribosomal protein L20	117
24213945	hypothetical protein LA_1245	213
24213947	5-formyltetrahydrofolate cyclo-ligase	176
24213951	chemotaxis protein histidine kinase CheA	1070
24213952	chemotaxis-specific methyltransferase CheB	357

24213953	two-component response regulator receiver protein	120
24213955	segregation and condensation protein B	187
24213958	3-phosphoshikimate 1- carboxyvinyltransferase	440
24213964	fatty acid/phospholipid synthesis protein	335
24213993	aspartate/tyrosine/arom atic aminotransferase	366
24214013	glutamine synthetase	473
24214023	phosphoribosylformylgly cinamide (FGAM) synthase	745
24214025	isoleucyl-tRNA synthetase	914
24214029	hypothetical protein LA_1329	239
24214051	capsule biosynthesis protein CapA	342
24214059	hypothetical protein LA_1359	150
24214078	GTP-binding protein BipA	606
24214088	glycyl-tRNA synthetase	464
24214091	ribosomal protein L11 methylase	300
24214092	ribokinase	328
24214098	hypothetical protein LA_1398 serine	218
24214109	hydroxymethyltransferas e	415
24214117	lactoylglutathione lyase	152
24214120	hypothetical protein LA_1420	125
24214122	serine/threonine kinase	1780
24214137	glucose kinase	298
24214149	carboxy-terminal processing protease	462
24214159	UDP-glucose 6- dehydrogenase	436

24214180	PLP dependent enzyme class III	222
24214188	glycolate oxidase	760
24214195	hypothetical protein LA_1495	331
24214211	L-aspartate oxidase	532
24214214	pyridoxal phosphate biosynthetic protein PdxJ	250
24214216	tRNA isopentenyltransferase	297
24214218	mannose-1-phosphate guanylyltransferase	353
24214232	fructose-bisphosphate aldolase	351
24214263	Hsp20/alpha crystallin molecular chaperone	130
24214278	FAD dependent oxidoreductase	365
24214279	phosphoheptose isomerase	186
24214287	hypothetical protein LA_1587	264
24214305	CMP-N-acetylneuraminic acid synthetase	228
24214310	UDP-N- acetylglucosamine 2- epimerase	387
24214311	nucleotidyl transferase	351
24214313	N-acetylneuraminic (sialic) acid synthetase	753
24214316	alcohol dehydrogenase	355
24214317	molybdenum cofactor biosynthesis protein	325
24214319	carbamoyl transferase	602
24214325	3-deoxy-manno- octulosonate cytidyltransferase	251
24214326	oxidoreductase family protein	342

24214329	phosphoglycerate dehydrogenase and related dehydrogenase	332
24214332	CDP-glucose 4,6- dehydratase	364
24214343	polysaccharide biosynthesis protein	344
24214354	FdtA-like protein dTDP-4-	139
24214359	dehydrorhamnose 3,5- epimerase dTDP-4-	186
24214360	dehydrorhamnose reductase	306
24214362	glucose-1-phosphate thymidyltransferase	294
24214375	30S ribosomal protein S6	91
24214376	single-stranded DNA- binding protein	150
24214377	30S ribosomal protein S18	103
24214378	50S ribosomal protein L9	149
24214380	aspartyl-tRNA synthetase	601
24214389	competence-damage inducible protein CinA	418
24214396	triosephosphate isomerase	250
24214403	phosphoglycerate kinase	396
24214404	glyceraldehyde 3- phosphate dehydrogenase	335
24214415	hypothetical protein LA_1715	357
24214419	cysteine synthase	309
24214425	HD family protein	525
24214428	hypothetical protein LA_1728	282
24214553	hypothetical protein LA_1853	146
24214563	cysteinyl-tRNA synthetase	472
24214564	acetyl esterase	321

24214565	bifunctional 5,10-methylene-tetrahydrofolate dehydrogenase/ 5,10-methylene-tetrahydrofolate cyclohydrolase	285
24214566	asparaginyl-tRNA synthetase	435
24214575	ATP-dependent helicase	658
24214583	hypothetical protein LA_1883	505
24214588	GTP-binding protein LepA	600
24214597	succinate dehydrogenase flavoprotein subunit	637
24214599	aldo/keto oxidoreductase	508
24214620	RNA-binding protein	92
24214628	thioredoxin	119
24214629	CAP family transcription factor	719
24214635	hypothetical protein LA_1935	190
24214636	hydrolase/acyltransferase	623
24214639	hypothetical protein LA_1939	159
24214647	hypothetical protein LA_1947	402
24214651	enolase	432
24214676	short-chain dehydrogenase	246
24214686	inosine-5'-monophosphate dehydrogenase	508
24214688	hypothetical protein LA_1988	230
24214695	lysyl-tRNA synthetase	495
24214709	pyruvate dehydrogenase subunit beta	324
24214710	pyruvate dehydrogenase subunit alpha	327
24214717	endoflagellar filament core protein	282
24214719	flagellin protein	284

24214724	hypothetical protein LA_2024	412
24214742	methylase of chemotaxis methyl-accepting protein	303
24214750	undecaprenyldiphospho- muramoylpentapeptide beta- N- acetylglucosaminyltransf erase	358
24214759	D-alanine--D-alanine ligase	351
24214761	homoserine O- acetyltransferase	366
24214762	O-acetylhomoserine/O- acetylserine sulfhydrylase	434
24214766	hypothetical protein LA_2066	276
24214771	HflC membrane associated protease	310
24214777	peptidyl-prolyl cis-trans isomerase	291
24214795	isopropylmalate isomerase large subunit	465
24214796	3-isopropylmalate dehydratase small subunit	206
24214807	ATP-grasp enzyme	343
24214809	glutaredoxin-like protein	107
24214819	glycerol kinase	496
24214825	periplasmic serine protease	328
24214829	DNA or RNA helicase	569
24214830	aspartate aminotransferase	404
24214832	hydrolase	277
24214839	malate dehydrogenase	326
24214841	dethiobiotin synthetase	221
24214842	adenosylmethionine-8- amino-7-oxononanoate aminotransferase	433

24214846	DNA mismatch repair protein MutS	848
24214851	two-component system signal receiver	135
24214852	isocitrate/isopropylmalat e dehydrogenase	358
24214853	acetylornithine aminotransferase	406
24214864	acyl-CoA hydrolase	140
24214878	N-acetyl-gamma- glutamyl-phosphate reductase	338
24214879	recombinase A	366
24214884	Zn-dependent protease	461
24214886	hypothetical protein LA_2186	1934
24214897	2,4-dienoyl-CoA reductase	669
24214912	excinuclease ABC subunit A	948
24214922	two component system sensor histidine kinase\response regulator	832
24214926	fructose-1,6- bisphosphatase	374
24214930	hypothetical protein LA_2230	148
24214931	DNA primase	598
24214932	RNA polymerase sigma- 70 factor	585
24214952	DJ-1/Pfpl family intracellular protease	181
24214980	endoflagellar biosynthesis chaperone	150
24214983	bifunctional phosphoribosylaminoimi dazolecarboxamide formyltransferase/IMP cyclohydrolase	511
24214986	translaldolase	214
24214997	hypothetical protein LA_2297	436
24215009	long-chain-fatty-acid CoA ligase	681

24215023	hypothetical protein LA_2323	234
24215024	3-ketoacyl-(acyl-carrier- protein) reductase	256
24215029	GTP-dependent nucleic acid-binding protein EngD	365
24215035	3-polyprenyl-4- hydroxybenzoate decarboxylase	204
24215045	ATP-dependent protease ATP-binding subunit	479
24215049	peptidyl-tRNA hydrolase	190
24215052	hypothetical protein LA_2352	519
24215057	exodeoxyribonuclease VII small subunit	95
24215074	type II secretory pathway ATPase protein E	557
24215083	response regulator with HD-GYP domain	394
24215087	50S ribosomal protein L19	138
24215088	tRNA (guanine-N1)- methyltransferase	231
24215094	ribulose-5-phosphate 3- epimerase	215
24215095	hypothetical protein LA_2395	331
24215099	hypothetical protein LA_2399	283
24215103	HPr	321
24215104	kinase/phosphorylase DNA-directed RNA polymerase sigma-54 subunit	473
24215111	ADP-heptose synthetase	337
24215113	cell wall-associated hydrolase/lipoprotein	423
24215132	biotin carboxylase-like protein	914
24215133	acetyl-CoA carboxylase carboxyltransferase component	555

24215138	peptide deformylase	178
24215168	hypothetical protein LA_2468	444
24215169	MCP methylation inhibitor	154
24215183	integrase/recombinase XerD	298
24215194	thioredoxin reductase	316
24215206	imidazoleglycerol- phosphate synthase	256
24215207	aspartyl/glutamyl-tRNA amidotransferase subunit A	487
24215212	cytoplasmic membrane lipoprotein LipL31	241
24215213	transcription-repair coupling factor	1186
24215228	GGDEF domain receiver component of a two component response regulator	330
24215239	ABC transporter ATPase	623
24215250	FKBP-type peptidyl-prolyl cis-trans isomerase	129
24215259	ATP-dependent protease ClpP	198
24215262	glycosylhydrolase	619
24215269	acetolactate synthase small subunit	161
24215270	acetolactate synthase large subunit	592
24215275	hypothetical protein LA_2575	89
24215276	hypothetical protein LA_2576	667
24215290	flagellar switch complex protein	323
24215323	glutathione transferase	218
24215325	oligopeptidase A	651
24215327	MaoC family protein	392
24215332	hypothetical protein LA_2632	320
24215337	hypothetical protein LA_2637	272
24215354	co-chaperonin GroES	96

24215355	chaperonin GroEL metal-dependent	546
24215374	amidase/aminoacylase/c arboxypeptidase	393
24215387	aminopeptidase P	429
24215391	N6-adenine-specific DNA methylase	416
24215402	phosphoglycolate phosphatase	224
24215406	thiamine biosynthesis enzyme	367
24215426	dioxygenase	315
24215433	peptide chain release factor 3	590
24215438	hypothetical protein LA_2738	369
24215459	rod shape-determining protein MreB	340
24215461	exopolyphosphatase	521
24215480	FOF1 ATP synthase subunit delta	186
24215508	ABC transporter permease	471
24215509	peroxiredoxin	193
24215521	hypothetical protein LA_2821	134
24215534	adenylate/guanylate cyclase	423
24215536	hypothetical protein LA_2836	155
24215540	ornithine carbamoyltransferase	311
24215548	flagellar hook protein FlgE	464
24215568	translation initiation factor 2B	365
24215603	Holliday junction DNA helicase RuvA	212
24215605	flavin reductase-like protein	159
24215616	ribonuclease D	212
24215620	two-component response regulator	369
24215628	GGDEF family protein	317
24215648	serine protease	484
24215650	two-component hybrid sensor and regulator	304
24215654	acyltransferase	265

24215655	methyalmalonyl-CoA mutase	1125
24215658	dihydroxy-acid dehydratase	560
24215666	hypothetical protein LA_2967	104
24215687	uridine 5- monophosphate synthase	194
24215689	NH(3)-dependent NAD(+) synthetase	642
24215694	hypothetical protein LA_2995	107
24215698	single-stranded DNA exonuclease	643
24215701	tRNA nucleotidyltransferase/p oly A polymerase	487
24215727	hypothetical protein LA_3028	685
24215732	molybdate metabolism regulator	276
24215738	hypothetical protein LA_3039	390
24215751	aminotransferase	434
24215769	anti-sigma-factor antagonist	113
24215779	adenylosuccinate lyase	433
24215785	nicotinate-nucleotide pyrophosphorylase	304
24215793	ferric uptake regulator	160
24215796	hypothetical protein LA_3097	555
24215817	hypothetical protein LA_3118	353
24215818	hypothetical protein LA_3119	322
24215843	acyl-CoA transferase/carnitine dehydratase	390
24215859	1-hydroxy-2-methyl-2-(E)- butenyl 4-diphosphate synthase	663
24215871	aldo/keto reductase	278
24215891	fruiting body developmental protein R	279

24215962	hypothetical protein LA_3263	407
24215963	hypothetical protein LA_3264	193
24215964	hypothetical protein LA_3265	183
24215966	molybdopterin oxidoreductase iron- sulfur binding subunit	1035
24215985	adenylate cyclase related protein	770
24215987	tryptophan synthase subunit alpha	264
24215988	tryptophan synthase subunit beta	397
24215989	prolyl-tRNA synthetase	576
24215994	ribosome recycling factor	184
24215995	uridylate kinase	248
24215996	elongation factor Ts	199
24216004	dihydrodipicolinate reductase	270
24216005	dihydrodipicolinate synthase	307
24216011	glyoxalase	141
24216019	hypothetical protein LA_3320	377
24216054	hypothetical protein LA_3355	191
24216064	hydroxyethylthiazole kinase	265
24216069	surface antigen OrfC lipoprotein	456
24216079	endoflagellar filament sheath protein	239
24216098	metallo-beta-lactamase	275
24216099	Zn-dependent peptidase	557
24216105	nucleotide-binding protein	163
24216106	alanyl-tRNA synthetase	977
24216108	50S ribosomal protein L13	149
24216109	hypothetical protein LA_3410	209

24216115	30S ribosomal protein S7	157
24216116	30S ribosomal protein S12	124
24216118	DNA-directed RNA polymerase subunit beta'	1404
24216119	DNA-directed RNA polymerase subunit beta	1226
24216120	50S ribosomal protein L7/L12	127
24216121	50S ribosomal protein L10	177
24216122	50S ribosomal protein L1	230
24216123	50S ribosomal protein L11	142
24216124	transcription antiterminator	181
24216134	DEAD/DEAH box helicase	540
24216152	hypothetical protein LA_3453	318
24216159	polyphosphate kinase outer membrane receptor for Fe3+- dicitrate/TonB- dependent receptor	712
24216167	hypothetical protein LA_3471	825
24216170	esterase	404
24216184	hypothetical protein LA_3497	235
24216196	phosphoribosylaminoimi dazole- succinocarboxamide synthase	740
24216212	serine/threonine phosphatase	285
24216213	hypothetical protein LA_3522	377
24216221	hypothetical protein LA_3533	229
24216232	ribosomal protein serine acetyltransferase	162
24216256	dioxygenase-like protein	263
24216280		257

24216295	ATP-dependent Lon protease	839
24216305	hypothetical protein LA_3606	150
24216324	DNA polymerase I	917
24216327	anthranilate synthase component I	473
24216331	FOG:HEAT repeat protein	486
24216335	cyclic amidohydrolase	424
24216337	homoserine dehydrogenase	429
24216403	heat shock protein GrpE	212
24216404	chaperone protein DnaK	646
24216406	heat shock protein DnaJ	372
24216443	hypothetical protein LA_3744	357
24216446	threonine synthase	449
24216447	hypothetical protein LA_3748	330
24216448	hypothetical protein LA_3749	194
24216481	glyoxalase/bleomycin resistance	134
24216482	protein/dioxygenase	
24216482	adenosine deaminase	442
24216500	glucosamine 6- phosphate synthetase	610
24216506	nitrogen regulatory protein P-II	114
24216515	hypothetical protein LA_3816	129
24216517	hypothetical protein LA_3818	157
24216518	ATP-dependent Zn protease	655
24216520	50S ribosomal protein L25	212
24216521	phosphoribosyl pyrophosphate synthetase	312
24216522	UDP-N- acetylglucosamine diphosphorylase	252
24216538	phospholipid binding protein	181

24216545	cation/multidrug efflux pump	1083
24216568	response regulator containing a signal receiver domain and a DNA-binding domain	223
24216573	acid phosphatase	250
24216587	glucose-6-phosphate isomerase	445
24216591	nucleoside-diphosphate- sugar pyrophosphorylase	242
24216593	histidine kinase/response regulator hybrid protein	507
24216602	metallo-beta-lactamase superfamily hydrolase	288
24216609	hypothetical protein LA_3910	290
24216611	hypothetical protein LA_3912	291
24216616	hypothetical protein LA_3917	169
24216617	methionyl-tRNA synthetase	715
24216621	hypothetical protein LA_3922	181
24216635	flavoprotein	180
24216637	hypothetical protein LA_3938	861
24216646	D-alanyl-D-alanine carboxypeptidase	244
24216647	UDP-glucose 4- epimerase	323
24216648	UDP-N- acetylglucosamine acyltransferase	259
24216656	3-deoxy-D-arabino- heptulosonate 7- phosphate synthase	373
24216657	3-methyl-2- oxobutanoate hydroxymethyltransferas e	265
24216658	2-amino-4-hydroxy-6- hydroxymethyldihydropt eridine pyrophosphokinase	149

24216663	GDP-mannose 4,6-dehydratase	340
24216668	adenosine/AMP deaminase	442
24216676	NTP pyrophosphohydrolase	162
24216681	hypothetical protein LA_3982	127
24216697	cholesterol oxidase	1135
24216734	phenylalanyl-tRNA synthetase subunit beta	808
24216739	inorganic pyrophosphatase	179
24216757	lysine decarboxylase-like protein	185
24216766	isocitrate dehydrogenase	398
24216778	UDP-N-acetylglucosamine 1-carboxyvinyltransferase	432
24216784	Zn-dependent alcohol dehydrogenase	340
24216785	ferredoxin	108
24216786	hypothetical protein LA_4087	164
24216792	MutT/nudix family protein	223
24216799	hypothetical protein LA_4100	148
24216802	response regulator	233
24216808	hypothetical protein LA_4109	374
24216818	NAD dependent DNA ligase	681
24216830	peptidase-like protein	659
24216837	3-hydroxyacyl-CoA dehydrogenase	436
24216849	phenylalanine-tRNA synthetase subunit alpha	341
24216858	fatty acid synthase subunit beta	385
24216865	argininosuccinate synthase	403

24216866	pantetheine-phosphate adenylyltransferase	160
24216867	nucleoside-diphosphate kinase	137
24216889	bifunctional glutamate- tRNA ligase/glutamine- tRNA ligase	521
24216899	L-amino acid oxidase sulfate	447
24216918	adenylyltransferase subunit 1 sulfate	416
24216919	adenylyltransferase subunit 2	305
24216938	polysaccharide deacetylase	540
24216947	purine nucleoside phosphorylase	287
24216954	GTP cyclohydrolase I	183
24216957	hypothetical protein LA_4258	162
24216965	phosphoribosylglycinami de formyltransferase 2	387
24216976	metal (Ni/Fe) hydrogenase large subunit	466
24216992	hypothetical protein LA_4293	224
24216994	hypoxanthine phosphoribosyltransferas e	183
24217038	seryl-tRNA synthetase	417
24217045	ParB-like protein	291
24217047	glucose-inhibited division protein B	254
24217054	hypothetical protein LA_4355	276
24217060	DNA polymerase III gamma and tau subunits	310
161484946	valyl-tRNA synthetase	882
161484947	leucyl-tRNA synthetase	864
161484948	FOF1 ATP synthase subunit alpha	503

161484952	bifunctional GMP synthase/glutamine amidotransferase	603
161484957	valine--pyruvate aminotransferase	417
229020021	FOF1 ATP synthase subunit gamma	286
294827557	hypothetical protein LA_0018	298
294827567	hypothetical protein LA_0071	156
294827570	dioxygenase superfamily protein	123
294827583	hypothetical protein LA_0136	309
294827584	hypothetical protein LA_0137	537
294827589	malic enzyme	420
294827600	cytochrome c oxidase subunit II	321
294827605	RNA polymerase ECF- type sigma factor	301
294827606	hypothetical protein LA_0268	105
294827608	lipoprotein releasing system permease	457
294827612	exonuclease	362
294827620	hypothetical protein LA_0323	142
294827621	geranylgeranyl pyrophosphate synthase	313
294827627	glycine cleavage system aminomethyltransferase T	396
294827630	phosphoserine aminotransferase	375
294827632	hypothetical protein LA_0370	577
294827635	hypothetical protein LA_0379	511
294827652	phosphoglyceromutase	548
294827680	bifunctional permease/carbonic anhydrase	741
294827690	hypothetical protein LA_0616	355

294827692	quinolinate synthetase	325
294827703	hypothetical protein LA_0654	232
294827726	30S ribosomal protein S17	67
294827727	30S ribosomal protein S5	168
294827741	methionine sulfoxide reductase B	131
294827742	biotin--[acetyl-CoA- carboxylase] ligase	253
294827752	NADH dehydrogenase (ubiquinone) chain E	159
294827765	translation initiation factor IF-2	863
294827769	hypothetical protein LA_0958	714
294827771	exodeoxyribonuclease V subunit alpha	612
294827823	carbamoyl phosphate synthase small subunit	362
294827827	bifunctional prephenate dehydratase/chorismate mutase	363
294827829	ATP phosphoribosyltransferase	206
294827834	hypothetical protein LA_1295	1010
294827842	hypothetical protein LA_1328	612
294827856	pirin-like protein	285
294827865	hypothetical protein LA_1412	334
294827875	transcriptional repressor LexA	203
294827885	membrane-bound proton-translocating pyrophosphatase	695
294827905	thymidylate synthase	524
294827913	hypothetical protein LA_1586	317
294827920	dTDP-4- dehydrorhamnose epimerase	150
294827924	dTDP-D-glucose 4,6- dehydratase	349

294827929	arginyl-tRNA synthetase	586
294827985	hypothetical protein LA_1950	164
294827988	preprotein translocase subunit SecA	909
294827997	hypothetical protein LA_1999	169
294828003	hypothetical protein LA_2025	420
294828010	UDP-N- acetylmuramoylalanyl-D- glutamate--2,6- diaminopimelate ligase	504
294828023	7-cyano-7-deazaguanine reductase	133
294828030	gamma-glutamylcysteine synthetase	520
294828041	endonuclease III	239
294828046	hypothetical protein LA_2174	198
294828071	deoxyguanosinetriphosp hate triphosphohydrolase	374
294828077	hypothetical protein LA_2295	388
294828080	UDP-3-O-[3- hydroxymyristoyl] N- acetylglucosamine deacetylase	337
294828087	hypothetical protein LA_2353	190
294828088	ribonucleotide reductase subunit alpha	1201
294828097	30S ribosomal protein S16	114
294828098	methionyl-tRNA formyltransferase	315
294828100	2-dehydro-3- deoxyphosphooctonate aldolase	287
294828101	CTP synthetase	538
294828103	endoflagellar hook- filament protein	284

294828105	penicillin tolerance protein	312
294828110	hypothetical protein LA_2436	102
294828116	methionyl aminopeptidase	240
294828117	hypothetical protein LA_2458	64
294828118	polymerase	572
294828130	hypothetical protein LA_2531	143
294828134	phosphate sodium symporter	763
294828136	acyl-CoA thioesterase	204
294828147	S-adenosylmethionine synthetase	412
294828160	bacterioferritin	155
294828162	Fe-S oxidoreductase	696
294828167	hypothetical protein LA_2726	119
294828170	acetyl-CoA carboxylase biotin carboxyl carrier protein subunit	166
294828180	F ₀ F ₁ ATP synthase subunit beta	467
294828187	hypothetical protein LA_2800	368
294828188	methyl-accepting chemotaxis protein	557
294828193	citrate lyase	330
294828212	pyruvate kinase	475
294828215	phosphoribosylaminoimi dazole synthetase	370
294828218	thiosulfate sulfurtransferase	285
294828227	Fe-S metabolism protein	132
294828235	nickel ABC transporter periplasmic protein OppA	599
294828236	guanosine polyphosphate pyrophosphohydrolase/s ynthetase	674
294828237	hypothetical protein LA_3091	245
294828265	hypothetical protein LA_3200b	497

294828269	hypothetical protein LA_3219	274
294828285	1-deoxy-D-xylulose 5- phosphate reductoisomerase	389
294828286	30S ribosomal protein S2	289
294828301	transcript cleavage factor/unknown domain fusion protein	926
294828302	flagellar filament sheath protein	315
294828310	hypothetical protein LA_3405	129
294828311	30S ribosomal protein S9	132
294828319	riboflavin biosynthesis protein	318
294828320	FAD/FMN-containing dehydrogenase	474
294828339	hypothetical protein LA_3534	158
294828340	activator of Hsp90 ATPase 1 family protein	153
294828347	selenocysteine lyase	413
294828352	DNA-binding ferritin-like protein	160
294828362	anthranilate synthase component II	192
294828371	uracil-DNA glycosylase	218
294828376	hypothetical protein LA_3697	674
294828378	antimicrobial peptide ABC transporter ATPase	260
294828390	phosphoribosylamine-- glycine ligase	422
294828422	hypothetical protein LA_3911	186
294828432	hypothetical protein LA_3961	303
294828446	hypothetical protein LA_4025	264
294828448	organic radical activating enzyme	237
294828454	ankyrin repeat- containing protein	338

294828460	apolipoprotein n-acyltransferase	609
294828463	amidophosphoribosyltransferase	446
294828465	bifunctional ornithine acetyltransferase/N-acetylglutamate synthase	383
294828475	hypothetical protein LA_4154	672
294828487	hypothetical protein LA_4185	365
294828493	ferredoxin-like sulfite reductase	561
294828498	ketol-acid reductoisomerase	333
294828513	carboxypeptidase I	514
294828514	ferredoxin--NADP reductase	310
294828515	DNA polymerase III subunit gamma	479
294828518	branched-chain amino acid aminotransferase	307
24212703	recombination protein RecF	365
24212711	outer membrane lipoprotein LipL21	186
24212742	glucose-methanol-choline oxidoreductase	537
24212767	hypothetical protein LA_0067	1061
24212817	hypothetical protein LA_0117	340
24212848	hypothetical protein LA_0147	408
24212861	NADH dehydrogenase (ubiquinone) chain I	175
24212866	hypothetical protein LA_0166	457
24212974	lipoprotein releasing system LolD	225
24213010	regulatory-like cAMP-binding protein	351
24213030	penicillin G acylase precursor	838
24213074	hypothetical protein LA_0374	696
24213099	paraoxonase	353

24213133	hypothetical protein LA_0433	181
24213141	hypothetical protein LA_0441	672
24213162	hypothetical protein LA_0462	268
24213275	hypothetical protein LA_0575	335
24213450	50S ribosomal protein L24	119
24213463	30S ribosomal protein S11	136
24213492	hypothetical protein LA_0792	437
24213503	hypothetical protein LA_0803	128
24213523	alpha/beta hydrolase-like protein	303
24213578	hypothetical protein LA_0878	350
24213589	NADH dehydrogenase (ubiquinone) chain H	346
24213651	hypothetical protein LA_0951	287
24213657	TolC-like outer membrane efflux protein	557
24213745	membrane carboxypeptidase/penicil lin-binding protein	827
24213752	hypothetical protein LA_1052	459
24213841	preprotein translocase subunit YajC	108
24213892	hypothetical protein LA_1192	523
24213906	hypothetical protein LA_1206	195
24213961	hypothetical protein LA_1261	247
24213980	phosphoglycerol transferase-like protein	662
24214003	GTP-binding protein EngA	489
24214026	hypothetical protein LA_1326	246

24214048	histidine kinase sensor protein	462
24214084	hypothetical protein LA_1384	306
24214097	export protein	984
24214140	hypothetical protein LA_1440	519
24214146	heavy metal efflux pump	393
24214221	chemotaxis protein CheW	154
24214253	hypothetical protein LA_1553	673
24214303	glycosyltransferase	316
24214352	hypothetical protein LA_1652	297
24214374	poly-gamma-glutamate synthesis protein	409
24214433	hypothetical protein LA_1733	387
24214434	anti-sigma factor antagonist-like protein	310
24214596	succinate dehydrogenase/fumarat e reductase iron-sulfur subunit	243
24214598	succinate:quinone oxidoreductase (SQR)- like protein	226
24214627	hypothetical protein LA_1927	269
24214657	hypothetical protein LA_1957	191
24214677	FAD-binding oxidoreductase	500
24214681	hypothetical protein LA_1981	540
24214696	hypothetical protein LA_1996	216
24214753	hypothetical protein LA_2053	182
24214805	gamma- glutamyltranspeptidase	577
24214854	phosphomannomutase	587

24214873	lipopolysaccharide core biosynthesis protein	353
24214944	hypothetical protein LA_2244	166
24214955	hypothetical protein LA_2255	356
24214962	alkylglycerone- phosphate synthase	563
24214968	hypothetical protein LA_2268	426
24215000	hypothetical protein LA_2300	226
24215001	hypothetical protein LA_2301	224
24215016	hypothetical protein LA_2316	146
24215020	biopolymer transport protein TolQ	201
24215037	chromosome partitioning ATPase	347
24215067	actin-like ATPase involved in cell division	540
24215076	type II secretory pathway component protein C	303
24215156	hypothetical protein LA_2456	305
24215210	hypothetical protein LA_2510	991
24215215	histidinol dehydrogenase	427
24215237	hypothetical protein LA_2537	705
24215284	hypothetical protein LA_2584	353
24215291	flagellar MS-ring protein	565
24215313	endoflagellar motor switch protein	354
24215364	flagellar basal body P- ring protein	366
24215372	hypothetical protein LA_2672	338
24215419	hypothetical protein LA_2719	768
24215455	transpeptidase/penicillin binding protein	647

24215481	F ₀ F ₁ ATP synthase subunit B	173
24215559	hypothetical protein LA_2859	173
24215617	alpha-galactosidase	646
24215703	prolipoprotein diacylglyceryl transferase	318
24215819	zinc-bindin carboxypeptidase	506
24215865	metallophosphoesterase	280
24215961	hypothetical protein LA_3262	159
24215967	hypothetical protein LA_3268	168
24215990	zinc metalloprotease	575
24216002	hypothetical protein LA_3303	351
24216140	leucyl aminopeptidase	495
24216231	hypothetical protein LA_3532	130
24216234	hypothetical protein LA_3535	182
24216270	hypothetical protein LA_3571	139
24216274	flagellar basal body- associated protein FliL	174
24216312	2-dehydropantoate 2- reductase	348
24216330	receiver component of a two-component response regulator	137
24216411	lysophospholipase L1 biosynthesis ABC transporter permease	845
24216451	hypothetical protein LA_3752	511
24216453	signal peptidase I	198
24216461	hypothetical protein LA_3762	142
24216464	hypothetical protein LA_3765	281
24216569	hypothetical protein LA_3870	554
24216612	hypothetical protein LA_3913	188
24216623	NAD(P)H steroid dehydrogenase	321

24216636	hemolysin-like protein	444
24216698	choline dehydrogenase	522
24216850	UDP-N-acetylmuramate-- L-alanine ligase	465
24216852	hypothetical protein LA_4153	367
24216877	GMC oxidoreductase	518
24216971	hypothetical protein LA_4272	650
24216977	metal (Ni/Fe) hydrogenase small subunit	273
24217048	metallopeptidase	482
161484954	30S ribosomal protein S15	88
294827558	glutaredoxin family protein	118
294827566	hypothetical protein LA_0070	987
294827572	1-acylglycerol-3- phosphate O- acyltransferase	234
294827581	hypothetical protein LA_0129	607
294827588	hypothetical protein LA_0172	780
294827598	hypothetical protein LA_0234	334
294827624	glycerophosphoryl diester phosphodiesterase	323
294827639	hypothetical protein LA_0389	304
294827654	hypothetical protein LA_0444	349
294827739	hypothetical protein LA_0818	334
294827744	dolichyl-phosphate- mannose-protein mannosyltransferase	578
294827748	aldehyde dehydrogenase	487
294827762	4-hydroxybenzoate transporter transmembrane protein	460

294827801	preprotein translocase subunit SecD	642
294827802	preprotein translocase subunit SecF	312
294827804	sulfate ABC transporter permease	276
294827812	hypothetical protein LA_1196	341
294827859	hypothetical protein LA_1396	177
294827896	hypothetical protein LA_1507	527
294827907	sodium/hydrogen antiporter	741
294827987	hypothetical protein LA_1958	203
294827993	cation efflux system protein	1109
294828020	hypothetical protein LA_2080	325
294828035	SGNH-hydrolase	248
294828058	endoflagellar motor protein B	336
294828059	magnesium transporter	463
294828084	glucose/sorbose dehydrogenase	457
294828092	type II secretory pathway component protein D	596
294828123	hypothetical protein LA_2497	484
294828143	sodium:alanine symporter/phosphatidyls erine decarboxylase	741
294828152	biotin carboxylase	410
294828153	flagellar basal body rod protein FlgG	264
294828159	lipopolysaccharide heptosyltransferase II	343
294828172	hypothetical protein LA_2746	609
294828177	cGMP-specific phosphodiesterase	718
294828195	MhpC-like protein	335
294828247	OmpL1	320

294828249	alpha/beta hydrolase superfamily protein	277
294828279	Fe-S-cluster-containing hydrogenase	455
294828309	hypothetical protein LA_3397	259
294828315	hypothetical protein LA_3433	261
294828363	multidrug ABC transporter ATPase/permease	606
294828368	ketosteroid isomerase- like protein	156
294828369	hypothetical protein LA_3664	368
294828439	hypothetical protein LA_4000	236
294828449	lauroyl/myristoyl acyltransferase	300
294828461	hypothetical protein LA_4084	183
45655587	5,10 methylene tetrahydrofolate reductase	310
45655588	hypothetical protein LIC20005	274
45655592	porphobilinogen deaminase	547
45655593	delta-aminolevulinic acid dehydratase	317
45655594	glutamate-1- semialdehyde aminotransferase	443
45655597	uroporphyrinogen decarboxylase	340
45655598	coproporphyrinogen III oxidase	443
45655605	azoreductase	200
45655611	NADH dehydrogenase	422
45655613	hypothetical protein LIC20030	202
45655615	hypothetical protein LIC20032	140
45655617	hypothetical protein LIC20034	356

45655618	hypothetical protein LIC20035	440
	methanol	
45655620	dehydrogenase regulator	357
45655627	heat shock protein 90	607
45655628	hypothetical protein LIC20045	189
45655645	phosphoribosyl-ATP pyrophosphatase	92
45655647	3-oxoacyl-(acyl-carrier protein) reductase	254
45655648	acyl carrier protein	77
45655661	hypothetical protein LIC20078	171
45655663	4-hydroxybenzoyl-CoA thioesterase	142
45655666	S-adenosyl-L- homocysteine hydrolase	436
45655668	B12-dependent methionine synthase	1247
45655671	diphosphate--fructose-6- phosphate 1- phosphotransferase	431
45655676	bacterioferritin comigratory protein	163
45655679	hypothetical protein LIC20096	365
45655683	hypothetical protein LIC20100	283
45655685	pheromone shutdown protein	408
45655697	LipL45 homologue	363
45655720	capsular polysaccharide biosynthesis protein	629
45655723	heat shock protein HtpX adenine	295
45655724	phosphoribosyltransfer ase	177
45655725	HtrA1	504
45655726	HtrA1-like protein	527
45655728	hypothetical protein LIC20146	525

45655740	ATP-dependent protease	540
45655747	hypothetical protein LIC20165	386
45655749	hypothetical protein LIC20167	356
45655754	lipoprotein	717
45655757	dnaK suppressor	150
45655767	hypothetical protein LIC20185	233
45655772	hypothetical protein LIC20190	485
45655775	4-hydroxybutyrate CoA transferase	429
45655776	hypothetical protein LIC20196	172
45655777	cysteine protease UTP-glucose-1-	799
45655779	phosphate uridyltransferase	472
45655784	cysteine desulfurase	383
45655785	hypothetical protein LIC20205	289
45655788	methylmalonyl-CoA mutase small subunit	626
45655794	hypothetical protein LIC20214	843
45655796	ExbB	204
45655803	hypothetical protein LIC20223	143
45655805	3-oxoacyl-[acyl-carrier protein] reductase	232
45655807	acireductone dioxygenase enzyme ARD and ARD' phosphate ABC	177
45655808	transporter periplasmic phosphate-binding protein	299
45655814	S-adenosylmethionine decarboxylase like protein	288
45655816	hypothetical protein LIC20240	180
45655817	alanine racemase	389
45655818	putative acyltransferase	381

45655819	hypothetical protein LIC20243	303
45655824	aconitate hydratase peptidoglycan-	757
45655825	associated cytoplasmic membrane protein	383
45655841	aspartate-semialdehyde dehydrogenase	349
45655847	hypothetical protein LIC20272	357
45655849	hypothetical protein LIC20274	250
45655850	hypothetical protein LIC20275	281
45655851	hypothetical protein LIC20276	312
45655915	chromosomal replication initiator protein	443
45655916	DNA polymerase III beta subunit	373
45655923	putative lipoprotein	245
45655925	LipL21	186
45655931	hypothetical protein LIC10017	301
45655933	3-oxoacyl-acyl carrier protein reductase	247
45655934	hypothetical protein LIC10020	202
45655936	arsenate reductase	120
45655941	hypothetical protein LIC10027	234
45655943	inositol monophosphatase	282
45655952	hypothetical protein LIC10038	502
45655959	dTDP-glucose 4-6- dehydratase	312
45655960	proton-translocating transhydrogenase, subunit alpha part 1	389
45655974	hypothetical protein LIC10060	1061
45655978	hypothetical protein LIC10064	160

	enoyl-CoA	
45655980	hydratase/isomerase family protein	260
45655983	glyoxylase I	132
45655987	3-demethylubiquinone- 9 3-methyltransferase	283
45655997	RNA methyltransferase	415
45656006	hypothetical protein LIC10095	118
45656016	hypothetical protein LIC10105	340
45656022	imidazoleglycerol- phosphate dehydratase	206
45656024	phosphoribosylformimi no-5-aminoimidazole carboxamide ribotide isomerase protein	241
45656025	hypothetical protein LIC10115	404
45656027	hypothetical protein LIC10117	616
45656028	phoshomethylpyrimidi ne kinase protein	273
45656032	hypothetical protein LIC10122	433
45656033	LipL45-like protein	330
45656034	hypothetical protein LIC10124	551
45656035	hypothetical protein LIC10125	1197
45656037	hypothetical protein LIC10127	312
45656042	sigma 54 activator	699
45656044	hypothetical protein LIC10134	408
45656048	HD-GYP hydrolase domain-containing protein	489
45656051	NADH dehydrogenase I G subunit	482
45656052	NADH dehydrogenase I I subunit	175
45656055	hypothetical protein LIC10145	457

45656063	hypothetical protein LIC10157	627
45656064	hypothetical protein LIC10158	236
45656067	hypothetical protein LIC10161	699
45656074	hypothetical protein LIC10168	132
45656081	hypothetical protein LIC10175	495
45656096	peptidoglycan associated cytoplasmic membrane protein	195
45656113	cytochrome c oxidase polypeptide II	333
45656116	hypothetical protein LIC10211	99
45656119	CarD transcriptional regulator	197
45656120	hypothetical protein LIC10215	343
45656131	hypothetical protein LIC10226	242
45656132	hypothetical protein LIC10227	609
45656136	hypothetical protein LIC10231	337
45656137	lipoprotein releasing system transmembrane protein	458
45656140	hypothetical protein LIC10235	94
45656142	cyclic nucleotide binding protein	405
45656146	hypothetical protein LIC10241	231
45656174	chlorohydrolase family protein zinc-binding	416
45656186	dehydrogenase family protein	340
45656187	farnesyl-diphosphate synthase	332
45656194	H ⁺ -translocating transhydrogenase subunit beta	466
45656206	hypothetical protein LIC10302	349

45656218	hypothetical protein LIC10314	557
45656221	ribose 5-phosphate isomerase B	145
45656222	hypothetical protein LIC10318	640
45656225	hypothetical protein LIC10321	696
45656229	hemolysin	378
45656230	hypothetical protein LIC10326	524
45656241	hypothetical protein LIC10337	369
45656243	hemolysin B	846
45656253	hypothetical protein LIC10350	160
45656256	hypothetical protein LIC10353	503
45656263	electron transfer flavoprotein alpha- subunit	319
45656264	electron transport flavoprotein beta subunit	253
45656280	hypothetical protein LIC10380	181
45656284	hypothetical protein LIC10384	672
45656302	hypothetical protein LIC10402	268
45656303	riboflavin synthase beta chain	151
45656305	hypothetical protein LIC10405	688
45656306	hypothetical protein LIC10406	438
45656311	hypothetical protein LIC10411	157
45656319	hypothetical protein LIC10419	318
45656325	hypothetical protein LIC10425	314
45656327	UDP-N- acetylglucosamine pyrophosphorylase	252
45656329	50S ribosomal protein L25/general stress protein Ctc	212

45656331	cell division protein	655
45656333	hypothetical protein LIC10434	121
45656339	nitrogen regulatory protein PII	114
45656342	3-methylcrotonoyl- CoA carboxylase beta subunit	536
45656344	glutamine-fructose-6- phosphate transaminase	610
45656358	hypothetical protein LIC10460	134
45656368	peptide chain release factor 2	367
45656372	hypothetical protein LIC10474	142
45656378	hypothetical protein LIC10480	511
45656380	hypothetical protein LIC10482	193
45656381	hypothetical protein LIC10483	330
45656384	hypothetical protein LIC10486	357
45656416	ABC transporter, atp- binding protein	263
45656417	hypothetical protein LIC10519	845
45656419	hypothetical protein LIC10521	182
45656421	hypothetical protein LIC10523	372
45656422	hypothetical protein LIC10524	646
45656423	hypothetical protein LIC10525	212
45656427	hypothetical protein LIC10529	714
45656444	lipase	357
45656449	hypothetical protein LIC10551	371
45656452	hypothetical protein LIC10554	164
45656476	hypothetical protein LIC10578	486
45656499	hypothetical protein LIC10601	150

45656504	DNA-binding stress protein	172
45656506	ATP-dependent protease La	839
45656522	flagellar protein	174
45656532	selenocysteine reductase	416
45656538	hypothetical protein LIC10640	334
45656560	hypothetical protein LIC10662	182
45656561	hypothetical protein LIC10663	159
45656562	hypothetical protein LIC10664	162
45656563	hypothetical protein LIC10665	130
45656570	hypothetical protein LIC10672	229
45656579	phosphoribosylformylg lycinamidine synthase	219
45656588	hypothetical protein LIC10690	740
45656597	hypothetical protein LIC10699	235
45656598	3-oxoacyl-[acyl-carrier- protein] reductase oxidoreductase	259
45656612	outer membrane receptor protein	825
45656616	hypothetical protein LIC10718	481
45656622	hypothetical protein LIC10724	318
45656629	cytosol aminopeptidase protein	495
45656634	ATP-dependent RNA helicase	540
45656636	hypothetical protein LIC10740	263
45656642	transcription antitermination protein	181
45656654	hypothetical protein LIC10760	209
45656659	hypothetical protein LIC10765	146

45656660	hypothetical protein LIC10766	144
45656662	metalloprotease	542
45656663	processing metalloprotease	557
45656664	hypothetical protein LIC10770 fused transcript cleavage	275
45656682	factor/uncharacterized domain-containing protein	926
45656686	surface antigen	456
45656698	glutathione S- transferase	164
45656699	hypothetical protein LIC10808	191
45656700	zinc binding dehydrogenase	348
45656719	hypothetical protein LIC10828	378
45656724	hypothetical protein LIC10833	170
45656736	hypothetical protein LIC10845	351
45656739	hypothetical protein LIC10848	125
45656748	integral membrane zinc metalloprotease	575
45656764	hypothetical protein LIC10873	168
45656765	molybdopterin oxidoreductase	1035
45656766	molybdopterin oxidoreductase membrane subunit	457
45656767	hypothetical protein LIC10876	183
45656768	hypothetical protein LIC10877	162
45656769	hypothetical protein LIC10878	407
45656802	transketolase alpha subunit protein	288
45656824	fruiting body developmental protein	279
45656838	sigma factor regulatory protein	569

45656857	alpha-methylacyl-CoA racemase	390
45656861	outer membrane protein	320
45656872	hypothetical protein LIC10984	322
45656873	hypothetical protein LIC10985	353
45656890	LipL71	555
45656896	hypothetical protein LIC11009	249
45656899	hypothetical protein LIC11013	599
45656903	hypothetical protein LIC11017	260
45656930	hypothetical protein LIC11046	400
45656935	hypothetical protein LIC11051	685
45656949	poly A polymerase	450
45656955	hypothetical protein LIC11071	107
45656994	histidine kinase response regulator hybrid protein nitrilotriacetate	304
45657031	monooxygenase component B	159
45657032	DNA helicase subunit A	212
45657057	hypothetical protein LIC11173	499
45657059	translation initiation factor	364
45657066	hypothetical protein LIC11182	173
45657067	hypothetical protein LIC11183	348
45657073	hypothetical protein LIC11189	660
45657078	putative citrate lyase	330
45657080	hypothetical protein LIC11196	155
45657092	hypothetical protein LIC11209	134
45657099	methyl-accepting chemotaxis transducer transmembrane protein	574

45657107	hypothetical protein LIC11224	383
45657121	ATP synthase C chain	108
45657141	hypothetical protein LIC11258	340
45657144	penicillin-binding protein	647
45657150	periplasmic sulfate- binding protein	334
45657151	hypothetical protein LIC11268	609
45657153	hypothetical protein LIC11270	429
45657156	hypothetical protein LIC11274	369
45657166	hypothetical protein LIC11284	120
45657167	hypothetical protein LIC11285	315
45657174	hypothetical protein LIC11294	699
45657178	hypothetical protein LIC11298	367
45657189	hypothetical protein LIC11309	416
45657191	acetyl-CoA C- acyltransferase	385
45657198	N-acyl-L-amino acid amidohydrolase	393
45657209	ribonuclease BN transmembrane protein	749
45657210	hypothetical protein LIC11332	422
45657222	hypothetical protein LIC11344	222
45657230	LipL32	272
45657233	transketolase	320
45657237	hypothetical protein LIC11359	392
45657246	sodium/alanine symporter family protein	713
45657247	hypothetical protein LIC11369	108
45657248	flagellar motor switch protein	354
45657275	hypothetical protein LIC11398	353

45657282	hypothetical protein LIC11405	667
45657285	hypothetical protein LIC11408	369
45657287	acetolactate synthase 3 regulatory subunit	161
45657290	glycosyl hydrolase ATP-dependent Clp	605
45657293	protease, proteolytic subunit	198
45657299	glycine rich RNA- binding protein	131
45657312	hypothetical protein LIC11436	705
45657317	hypothetical protein LIC11441	158
45657331	LipL31	241
45657336	glutamyl-tRNA(Gln) amidotransferase subunit A	487
45657337	hypothetical protein LIC11462	256
45657343	hypothetical protein LIC11468	489
45657363	chemotaxis protein	154
45657364	hypothetical protein LIC11489	444
45657365	hypothetical protein LIC11490	249
45657371	hypothetical protein LIC11496	98
45657373	hypothetical protein LIC11498	1137
45657374	hypothetical protein LIC11499	80
45657375	methionine aminopeptidase	252
45657385	putative polypeptide deformylase protein	178
45657387	hypothetical protein LIC11514	122
45657388	hypothetical protein LIC11515	938
45657390	acetyl-CoA carboxylase alpha subunit	555

45657391	biotin carboxylase subunit of acetyl CoA carboxylase	914
45657409	hypothetical protein LIC11536	423
45657411	ADP-heptose synthase	337
45657423	hypothetical protein LIC11550	283
45657436	hypothetical protein LIC11563	394
45657442	hypothetical protein LIC11569	302
45657443	general secretory pathway protein D	596
45657444	general secretory pathway protein E	557
45657446	general secretory pathway protein G	158
45657451	hypothetical protein LIC11578	540
45657453	hypothetical protein LIC11580	313
45657460	ribonucleotide- diphosphate reductase subunit alpha	1201
45657462	exodeoxyribonuclease small subunit	95
45657467	hypothetical protein LIC11595	519
45657469	2-isopropylmalate synthase 2	516
45657472	ATP-dependent protease peptidase subunit	180
45657474	hypothetical protein LIC11602	501
45657479	cell division ATPase	347
45657481	3-octaprenyl-4- hydroxybenzoate carboxylase	204
45657485	translation-associated GTPase	365
45657488	ADP-L-glycero-D- mannoheptose-6- epimerase	326

45657489	ArsR family transcriptional regulator	99
45657491	hypothetical protein LIC11619	234
45657493	biopolymer transport protein	201
45657494	biopolymer transport exbd-related	149
45657497	transmembrane protein hypothetical protein LIC11625	146
45657506	CsgA	222
45657508	hypothetical protein LIC11636	224
45657509	hypothetical protein LIC11637	226
45657513	hypothetical protein LIC11641	436
45657515	LipL45	390
45657519	pseudouridylate synthase	246
45657520	hypothetical protein LIC11650	341
45657522	putative transaldolase	214
45657527	hypothetical protein LIC11657	150
45657544	TetR family transcriptional regulator	217
45657548	hypothetical protein LIC11682	356
45657551	hypothetical protein LIC11685	181
45657553	endonuclease	308
45657559	hypothetical protein LIC11693	166
45657579	motility protein B nucleotide excision	266
45657583	repair subunit A UvrABC	948
45657584	protease IV	579
45657605	hypothetical protein LIC11739	1934
45657606	hypothetical protein LIC11740	444
45657607	hypothetical protein LIC11741	461

45657615	hypothetical protein LIC11749	593
45657616	hypothetical protein LIC11750	215
45657634	3-isopropylmalate dehydrogenase	358
45657636	hypothetical protein LIC11770	181
45657640	DNA mismatch repair protein	848
45657642	hypothetical protein LIC11776	248
45657648	hypothetical protein LIC11782	348
45657654	alpha/beta hydrolase	277
45657657	ATP-dependent DNA helicase	569
45657666	hypothetical protein LIC11800	318
45657674	glutaredoxin-related protein	107
45657676	hypothetical protein LIC11811	343
45657686	isopropylmalate isomerase small subunit	206
45657694	bifunctional GMP synthase/glutamine amidotransferase protein	603
45657707	hypothetical protein LIC11844	315
45657708	hypothetical protein LIC11845	310
45657711	hypothetical protein LIC11848	276
45657715	O-acetylhomoserine (thiol) lyase	434
45657718	d-alanine-d-alanine ligase	351
45657722	hypothetical protein LIC11859	251
45657726	UDP-N- acetylmuramate-alanine ligase	490

45657727	UDP-N-acetylglucosamine:LPS N-acetylglucosamine transferase	358
45657730	UDP-N-acetylmuramoylalanyl- D-glutamate--2,6- diaminopimelate ligase	506
45657738	putative hydrolase	412
45657747	hypothetical protein LIC11884	432
45657760	pyruvate dehydrogenase alpha2 subunit protein	327
45657769	hypothetical protein LIC11909	156
45657774	udp-n-acetyl-d- mannosamine transferase	275
45657775	thiamine phosphate pyrophosphorylase	214
45657779	IMP dehydrogenase	508
45657780	hypothetical protein LIC11920	389
45657805	hypothetical protein LIC11946	223
45657810	ATP-dependent Clp protease-like, proteolytic subunit	197
45657814	hypothetical protein LIC11955	186
45657817	ARM repeat-containing protein	402
45657824	hypothetical protein LIC11970	623
45657825	hypothetical protein LIC11971	190
45657845	D-3-phosphoglycerate dehydrogenase	226
45657854	succinate dehydrogenase	226
45657868	cytochrome B subunit hypothetical protein LIC12016	135
45657878	methylenetetrahydrofol ate dehydrogenase	284
45657879	hypothetical protein LIC12027	321

45657889	hypothetical protein LIC12040	146
45657912	hypothetical protein LIC12064	332
45657918	hypothetical protein LIC12070	310
45657919	hypothetical protein LIC12071	387
45657923	hypothetical protein LIC12075	282
45657926	hypothetical protein LIC12078	525
45657932	hypothetical protein LIC12084	357
45657938	glyceraldehyde-3- phosphate dehydrogenase	335
45657949	hypothetical protein LIC12101	418
45657960	single-stranded DNA binding protein	150
45657972	dTDP-glucose 4,6- dehydratase	349
45657976	glycosyl transferase	273
45657979	hypothetical protein LIC12131	139
45657981	hypothetical protein LIC12133	297
45658012	hypothetical protein LIC12163	602
45658014	putative molybdenum cofactor biosynthesis protein	325
45658018	sialic acid synthase	753
45658021	putative UDP-N- acetylglucosamine-2- epimerase	387
45658026	CMP-N- acetylneuraminic acid synthetase	228
45658028	sugar transferase	315
45658042	hypothetical protein LIC12193	264
45658043	transketolase beta subunit	310
45658045	hypothetical protein LIC12196	544

45658053	FAD-dependent oxidoreductase family protein	365
45658054	GDP-l-fucose synthetase	314
45658060	Hsp15	130
45658070	cation:proton antiporter	750
45658094	host factor-1	85
45658096	hypothetical protein LIC12247	171
45658112	hypothetical protein LIC12263	331
45658117	putative glycolate oxidase	760
45658124	hypothetical protein LIC12276	222
45658142	udp-glucose dehydrogenase	436
45658153	LexA family transcriptional repressor	203
45658160	glucokinase	298
45658172	serine/threonine kinase protein	1780
45658174	hypothetical protein LIC12326	123
45658176	putative lactoylglutathione lyase	152
45658177	hypothetical protein LIC12331	281
45658179	hypothetical protein LIC12333	340
45658187	hypothetical protein LIC12341	218
45658189	hypothetical protein LIC12343	177
45658199	hypothetical protein LIC12353	306
45658203	elongation factor EF-G	606
45658214	hypothetical protein LIC12368	398
45658217	hypothetical protein LIC12371	150
45658223	capsule biosynthesis protein	342

45658242	hypothetical protein LIC12396	239
45658243	hypothetical protein LIC12397	614
45658248	phosphoribosylformylg lycinamide synthetase	745
45658253	putative glutamine synthetase protein	473
45658266	hypothetical protein LIC12421	1010
45658267	aspartate aminotransferase a	366
45658278	phosphoglycerol transferase	662
45658287	putative glycerol-3- phosphate acyltransferase PlsX ATP	335
45658289	phosphoribosyltransfer ase catalytic subunit	206
45658290	hypothetical protein LIC12446	247
45658294	chorismate mutase and prephenate dehydratase	368
45658295	hypothetical protein LIC12452	187
45658298	protein-glutamate methylesterase	357
45658302	hypothetical protein LIC12460	212
45658318	dihydrolipoamide succinyltransferase	421
45658319	Pbp1A	812
45658330	hypothetical protein LIC12488	140
45658331	hypothetical protein LIC12489	187
45658341	hypothetical protein LIC12499	523
45658342	chemoreceptor (methyl- accepting chemotaxis) transmembrane protein	691
45658343	hypothetical protein LIC12501	313

45658357	cystine-binding periplasmic protein precursor	330
45658358	acetoacetyl-CoA synthetase	660
45658371	sulfate ABC transporter periplasmic sulphate- binding protein precursor	335
45658376	GTP cyclohydrolase 2	401
45658381	hypothetical protein LIC12539	248
45658382	hypothetical protein LIC12540	108
45658383	anthranilate phosphoribosyltransfer ase	336
45658385	hypothetical protein LIC12543	437
45658386	DNA binding protein outer membrane	371
45658387	lipoprotein carrier protein	257
45658390	hypothetical protein LIC12548	80
45658401	deoxyuridine 5'triphosphate nucleotidohydrolase	145
45658402	hypothetical protein LIC12561	316
45658406	adenylosuccinate synthetase	425
45658407	hypothetical protein LIC12568	278
45658411	succinyl-CoA synthetase beta subunit	390
45658412	succinyl-CoA synthetase alpha subunit	291
45658414	hypothetical protein LIC12576	477
45658419	hypothetical protein LIC12581	160
45658452	hypothetical protein LIC12615	356
45658457	membrane carboxypeptidase	827

45658458	hypothetical protein LIC12621	136
45658472	hypothetical protein LIC12635	387
45658521	exodeoxyribonuclease v alpha chain	617
45658527	hypothetical protein LIC12692	716
45658529	glutamate synthase (NADPH) alpha chain precursor	1498
45658530	hypothetical protein LIC12695	441
45658536	polynucleotide phosphorylase/polyade nylase	698
45658543	hypothetical protein LIC12708	392
45658552	putative 4- hydroxybenzoate transporter	465
45658553	transmembrane protein putative enolase- phosphatase E-1	234
45658564	hypothetical protein LIC12730	676
45658565	hypothetical protein LIC12731	665
45658571	site-specific modification DNA- methyltransferase	543
45658577	NADH dehydrogenase I subunit C	178
45658578	NADH dehydrogenase I D subunit	405
45658579	NADH dehydrogenase I E subunit	161
45658580	NADH dehydrogenase I F subunit	443
45658581	NADH dehydrogenase I H subunit	346
45658589	hypothetical protein LIC12755	156

45658590	DshA	350
45658603	putative nicotinate- nucleotide adenylyltransferase	199
45658613	hydroxymethylglutaryl- CoA lyase	298
45658624	hypothetical protein LIC12793	254
45658627	hypothetical protein LIC12796	286
45658632	hypothetical protein LIC12801	303
45658636	hypothetical protein LIC12805	335
45658643	serine protease MucD precursor	388
45658651	hypothetical protein LIC12821	146
45658652	hypothetical protein LIC12822	255
45658661	SAM dependent methyltransferase	315
45658664	hypothetical protein LIC12834	347
45658676	DNA-directed RNA polymerase subunit alpha	325
45658685	50S ribosomal protein L30	59
45658708	hypothetical protein LIC12878	183
45658716	hypothetical protein LIC12886	249
45658752	hypothetical protein LIC12923	514
45658756	beta-lactamase related protein	321
45658759	chemotaxis motility protein A	252
45658764	hypothetical protein LIC12936	237
45658770	hypothetical protein LIC12942	222
45658793	LipL41	355
45658797	hypothetical protein LIC12970	409
45658801	hypothetical protein LIC12974	187

45658807	hypothetical protein LIC12980	151
45658819	sulfate permease	750
45658822	hypothetical protein LIC12995	335
45658842	hypothetical protein LIC13015	346
45658844	acriflavine resistance	1103
45658848	hypothetical protein LIC13021	857
45658849	hypothetical protein LIC13022	391
45658853	ThiJ/PfpI family protein	234
45658872	UDP glucosamine N- acyltransferase	340
45658876	hypothetical protein LIC13050	366
45658897	hypothetical protein LIC13071	181
45658900	acriflavin resistance	1083
45658915	hypothetical protein LIC13089	554
45658920	survival protein	250
45658931	sugar-phosphate nucleotidyl transferase	242
45658932	hypothetical protein LIC13109	331
45658944	hypothetical protein LIC13121	290
45658946	hypothetical protein LIC13123	291
45658947	hypothetical protein LIC13125	188
45658950	hypothetical protein LIC13128	183
45658953	hypothetical protein LIC13131	181
45658964	phosphopantothenoylcy steine decarboxylase	180
45658966	hypothetical protein LIC13144	861
45658977	hypothetical protein LIC13155	115
45658984	phospho-2-dehydro-3- deoxyheptonate aldolase chorismate mutase	380

45658988	hypothetical protein LIC13166	306
45658994	hypothetical protein LIC13172	419
45658997	potassium uptake system protein (di)nucleoside	236
45659002	polyphosphate hydrolase	162
45659005	methyl-accepting chemotaxis-like	127
45659034	hypothetical protein LIC13212	278
45659036	putative cytochrome oxidase subunit	194
45659041	phenylalanyl-tRNA synthetase beta chain	801
45659057	ankyrin-like protein	338
45659058	hypothetical protein LIC13237	185
45659078	NADH oxidoreductase	340
45659083	glutamine phosphoribosylpyrophosphate amidotransferase	490
45659085	MutT nudix family protein	223
45659092	bifunctional ornithine acetyltransferase/N- acetylglutamate synthase protein	385
45659096	hypothetical protein LIC13275	374
45659114	hypothetical protein LIC13293	659
45659129	phenylalanyl-tRNA synthetase alpha chain	341
45659133	hypothetical protein LIC13314	675
45659144	phosphopantetheine adenylyltransferase	160
45659145	nucleoside diphosphate kinase	137
45659164	glutamyl-tRNA synthetase	521
45659179	hypothetical protein LIC13360	611

45659182	hypothetical protein LIC13363	258
45659186	sulfite reductase subunit beta	561
45659216	5'-methylthioadenosine phosphorylase	287
45659224	hypothetical protein LIC13407	162
45659234	hypothetical protein LIC13417	283
45659235	hypothetical protein LIC13418	341
45659240	hydrogenase subunit	466
45659253	hypothetical protein LIC13436	224
45659255	hypoxanthine-guanine- xanthine phosphoribosyltransfer ase	183
45659289	DNA polymerase III gamma subunit	479
45659297	hypothetical protein LIC13482	339
45659301	hypothetical protein LIC13488	291
45659303	glucose inhibited division protein B	254
45659305	hypothetical protein LIC13494	276
45659308	DNA polymerase III	310
161621772	50S ribosomal protein L14	130
161621780	valine--pyruvate transaminase	417
229259640	F0F1 ATP synthase subunit A	350
386072505	hypothetical protein LIF_A0017	298
386072508	putative translation factor Sua5	203
386072515	hypothetical protein LIF_A0027	234
386072526	hypothetical protein LIF_A0038 NAD(P)(+)	502
386072534	transhydrogenase alpha subunit	389

386072551	hypothetical protein LIF_A0063	156
386072581	hypothetical protein LIF_A0096	118
386072596	imidazoleglycerol- phosphate dehydratase or histidinol-phosphatase	206
386072599	hypothetical protein LIF_A0115	404
386072607	hypothetical protein LIF_A0123	433
386072608	LipL45-like lipoprotein	309
386072610	hypothetical protein LIF_A0126	1197
386072623	hypothetical protein LIF_A0139	489
386072640	hypothetical protein LIF_A0158	692
386072668	hypothetical protein LIF_A0189	510
386072704	hypothetical protein LIF_A0225	242
386072708	hypothetical protein LIF_A0229	105
386072711	hypothetical protein LIF_A0232	337
386072712	permease component of lipoprotein releasing system	457
386072715	hypothetical protein LIF_A0235a	94
386072720	hypothetical protein LIF_A0240	231
386072755	hypothetical protein LIF_A0276 NAD(P)(+)	142
386072764	transhydrogenase beta component	466
386072783	glycine cleavage T protein	396
386072786	hypothetical protein LIF_A0308	553
386072790	hypothetical protein LIF_A0312	577
386072799	hypothetical protein LIF_A0321	511

386072822	ATP-binding protein of an ABC transporter complex	304
386072860	hypothetical protein LIF_A0383	56
386072879	hypothetical protein LIF_A0402	157
386072898	hypothetical protein LIF_A0422	366
386072924	hypothetical protein LIF_A0449	841
386072930	putative periplasmic solute-binding protein	338
386072978	protein FtsA	409
386073010	hypothetical protein LIF_A0534	232
386073060	hypothetical protein LIF_A0586	249
386073102	RNA polymerase alpha subunit	325
386073114	putative Zn-dependent hydrolase	347
386073126	putative protein involved in cell shape determination	146
386073152	putative thioesterase	286
386073161	Indole-3-glycerol phosphate synthase	252
386073191	hypothetical protein LIF_A0718	156
386073215	hypothetical protein LIF_A0742	665
386073237	hypothetical protein LIF_A0764	392
386073249	hypothetical protein LIF_A0776	441
386073252	hypothetical protein LIF_A0779	714
386073324	hypothetical protein LIF_A0851	136
386073355	hypothetical protein LIF_A0883	160
386073362	hypothetical protein LIF_A0890	477
386073370	hypothetical protein LIF_A0898	278
386073388	hypothetical protein LIF_A0919	80

386073393	hypothetical protein LIF_A0924	371
386073405	substrate-binding protein of ABC-type sulfate transport system	335
386073419	substrate binding protein of an ABC transporter complex	330
386073430	signal transduction protein containing REC,GGDEF and EAL domains	569
386073434	hypothetical protein LIF_A0965	313
386073478	hypothetical protein LIF_A1010	213
386073512	hypothetical protein LIF_A1044	1010
386073534	hypothetical protein LIF_A1067	612
386073535	hypothetical protein LIF_A1068	239
386073549	signal receiver component of two- component system	151
386073553	capsule biosynthesis protein CapA (poly- gamma-glutamate biosynthesis protein)	342
386073559	hypothetical protein LIF_A1093	150
386073581	50S ribosomal protein L11 methylase	300
386073586	hypothetical protein LIF_A1120	218
386073593	glycine hydroxymethyltransferas e	415
386073595	hypothetical protein LIF_A1129	334
386073600	hypothetical protein LIF_A1134	125
386073602	signal transduction protein containing GAF and PP2C domains	930
386073667	hypothetical protein LIF_A1202	331

386073694	putative signal transduction protein containing CBS domains	146
386073739	hypothetical protein LIF_A1274	264
386073771	putative carbamoyl transferase	602
386073794	FnlA	344
386073836	CinA	418
386073856	hypothetical protein LIF_A1390	357
386073863	hypothetical protein LIF_A1397	282
386073957	hypothetical protein LIF_A1488	146
386073968	bifunctional folate pathway enzyme	285
386074021	hypothetical protein LIF_A1555	190
386074033	hypothetical protein LIF_A1568	402
386074036	hypothetical protein LIF_A1571	164
386074072	hypothetical protein LIF_A1607	230
386074080	hypothetical protein LIF_A1614	169
386074100	hypothetical protein LIF_A1636	412
386074101	hypothetical protein LIF_A1637	420
386074136	hypothetical protein LIF_A1672	276
386074232	hypothetical protein LIF_A1771	198
386074241	putative Zn-dependent protease	461
386074243	hypothetical protein LIF_A1782	1934
386074273	sensor histidine kinase and response regulator of a two component complex	832
386074280	Yqey-like protein	148
386074323	PurH	511
386074336	hypothetical protein LIF_A1875	436
386074358	hypothetical protein LIF_A1897	234

386074382	hypothetical protein LIF_A1921	519
386074384	hypothetical protein LIF_A1923	190
386074418	hypothetical protein LIF_A1958	331
386074421	hypothetical protein LIF_A1961	283
386074457	hypothetical protein LIF_A1997	102
386074474	hypothetical protein LIF_A2016	64
386074484	hypothetical protein LIF_A2026	444
386074485	inhibitor of MCP methylation	154
386074490	putative polymerase	572
386074511	amidase	487
386074516	hypothetical protein LIF_A2057	241
386074526	diguanylate cyclase	330
386074529	hypothetical protein LIF_A2070	143
386074561	hypothetical protein LIF_A2103	369
386074563	hypothetical protein LIF_A2105	89
386074564	hypothetical protein LIF_A2106	667
386074657	putative N6-adenine- specific DNA methylase	416
386074682	hypothetical protein LIF_A2227	119
386074688	putative acetyl-CoA carboxylase/pyruvate carboxylase	166
386074691	hypothetical protein LIF_A2236	369
386074706	actin-like ATPase	340
386074719	ATP synthase subunit gamma	286
386074721	ATP synthase F1 subunit delta	186
386074750	hypothetical protein LIF_A2300	134
386074762	hypothetical protein LIF_A2313	155

386074807	Holliday junction ATP- dependent DNA helicase RuvA	212
386074808	flavin reductase-related protein	159
386074881	hypothetical protein LIF_A2434	107
386074885	ssDNA-specific exonuclease RecJ	643
386074902	leucine-rich repeat containing protein	685
386074907	hypothetical protein LIF_A2460	390
386074938	OppA	599
386074941	hypothetical protein LIF_A2494	245
386074967	hypothetical protein LIF_A2522	322
386074997	serine/threonine phosphatase containing GAF domains	588
386075055	hypothetical protein LIF_A2615	407
386075057	hypothetical protein LIF_A2617	183
386075073	adenylate cyclase-like protein	770
386075100	leucine-rich repeat protein	377
386075127	hypothetical protein LIF_A2689	191
386075144	transcript cleavage factor/hypothetical protein	926
386075163	hypothetical protein LIF_A2728	129
386075168	hypothetical protein LIF_A2733	209
386075201	hypothetical protein LIF_A2768	318
386075215	putative periplasmic lipoprotein	404
386075230	putative esterase	235
386075237	hypothetical protein LIF_A2804	740
386075253	phosphoribosylaminoimi dazolesuccinocarboxami de synthase	285

386075254	serine/threonine phosphatase containing signal receiver domain REC	377
386075260	hypothetical protein LIF_A2828	229
386075268	hypothetical protein LIF_A2836	162
386075269	hypothetical protein LIF_A2837	158
386075291	hypothetical protein LIF_A2858	320
386075301	ATP-binding component of an ABC transporter complex	255
386075330	hypothetical protein LIF_A2897	150
386075355	HEAT repeat containing protein	486
386075400	hypothetical protein LIF_A2966	674
386075405	GrpE	212
386075406	DnaK protein	646
386075409	putative transcriptional regulator	182
386075412	ATPase component of ABC-type antimicrobial peptide transport system	260
386075437	hypothetical protein LIF_A3003	357
386075440	hypothetical protein LIF_A3006	330
386075441	hypothetical protein LIF_A3007	194
386075452	peptidyl-tRNA hydrolase involved in peptide chain release	367
386075477	3-methylcrotonoyl-CoA carboxylase subunit beta	536
386075485	hypothetical protein LIF_A3053	129
386075486	hypothetical protein LIF_A3054	157
386075541	histidine kinase and response regulator hybrid protein	507

386075551	hypothetical protein LIF_A3122	290
386075552	hypothetical protein LIF_A3123	186
386075553	hypothetical protein LIF_A3124	291
386075557	hypothetical protein LIF_A3129	169
386075560	hypothetical protein LIF_A3132	181
386075573	hypothetical protein LIF_A3145	861
386075590	3-deoxy-D- arabinoheptulosonate-7- phosphate synthase	373
386075594	hypothetical protein LIF_A3166	303
386075610	hypothetical protein LIF_A3182	127
386075640	hypothetical protein LIF_A3211	264
386075661	lysine decarboxylase- related protein	185
386075694	hypothetical protein LIF_A3266	148
386075702	hypothetical protein LIF_A3274	374
386075706	putative acetyl-CoA acetyltransferase	507
386075735	phenylalanine-tRNA synthetase alpha subunit	341
386075739	hypothetical protein LIF_A3311	672
386075765	hypothetical protein LIF_A3337	365
386075826	hypothetical protein LIF_A3398	162
386075854	hypothetical protein LIF_A3426	224
386075903	hypothetical protein LIF_A3479	276
386075905	putative branched-chain amino acid aminotransferase	307
386075906	DNA polymerase III subunits gamma and tau	310
386072548	hypothetical protein LIF_A0060	1061

386072550	hypothetical protein LIF_A0062	987
386072591	hypothetical protein LIF_A0106	340
386072601	hypothetical protein LIF_A0117	607
386072630	hypothetical protein LIF_A0146	457
386072713	lipoprotein releasing system, LolD ATPase component	225
386072742	regulatory-related cAMP- binding protein	351
386072775	hypothetical protein LIF_A0297	349
386072798	hypothetical protein LIF_A0320	378
386072809	hypothetical protein LIF_A0331	304
386072851	hypothetical protein LIF_A0374	181
386072855	hypothetical protein LIF_A0378	672
386072872	hypothetical protein LIF_A0395	268
386073121	hypothetical protein LIF_A0647	437
386073144	hypothetical protein LIF_A0671	334
386073148	alpha/beta hydrolase- related protein	303
386073190	hypothetical protein LIF_A0717	350
386073323	hypothetical protein LIF_A0850	459
386073397	Preprotein translocase YajC subunit	108
386073406	sulfate ABC transport system permease protein	276
386073447	hypothetical protein LIF_A0978	195
386073492	hypothetical protein LIF_A1024	247
386073501	phosphoglycerol transferase-related protein	662
386073676	hypothetical protein LIF_A1211	527

386073807	glycosyl transferase family protein	273
386073867	hypothetical protein LIF_A1401	387
386074013	hypothetical protein LIF_A1547	269
386074044	hypothetical protein LIF_A1579	203
386074065	hypothetical protein LIF_A1600	540
386074123	hypothetical protein LIF_A1659	182
386074146	hypothetical protein LIF_A1682	325
386074289	hypothetical protein LIF_A1828	166
386074298	hypothetical protein LIF_A1837	356
386074339	hypothetical protein LIF_A1878	226
386074340	hypothetical protein LIF_A1879	224
386074472	hypothetical protein LIF_A2014	305
386074534	LipL45-related protein	705
386074571	hypothetical protein LIF_A2113	353
386074696	hypothetical protein LIF_A2242	609
386074736	hypothetical protein LIF_A2285	368
386074774	MhpC-related protein	335
386074776	hypothetical protein LIF_A2328	173
386075060	hypothetical protein LIF_A2620	168
386075089	hypothetical protein LIF_A2650	351
386075267	hypothetical protein LIF_A2835	130
386075270	hypothetical protein LIF_A2838	182
386075304	hypothetical protein LIF_A2871	139
386075353	ATPase and permease components of ABC-type multidrug transport system	606
386075448	hypothetical protein LIF_A3015	142

386075523	hypothetical protein LIF_A3092	554
386075836	hypothetical protein LIF_A3408	650

Total Conserved Proteins

terrogans serovar Canicola

Mean No. of peptides	Mean % Coverage
24.00	30.67
31.67	35.23
18.67	19.17
4.33	14.50
10.33	27.50
4.33	19.40
9.00	8.07
9.33	27.87
3.67	5.13
3.67	6.63
2.33	11.50
14.33	26.90
15.33	31.67
19.00	17.03
2.00	1.60
5.33	34.43
15.67	29.27
14.33	16.33
11.00	17.47
4.67	21.03
6.67	29.13
2.67	7.60

10.33	25.00
2.67	9.60
12.67	14.57
10.33	18.43
14.67	17.20
11.33	26.97
12.00	19.43
10.00	27.83
5.33	10.33
4.00	6.93
12.33	27.93
3.33	5.33
21.00	36.10
2.33	6.93
9.00	30.37
4.67	6.87
20.00	17.07
77.67	36.03
11.00	18.00
12.00	25.13
2.33	7.97
3.67	13.80
4.67	11.70

11.33	29.40
3.33	14.20
4.67	16.60
98.00	43.23
4.33	9.60
12.00	10.13
46.33	29.20
5.33	34.43
29.67	22.17
3.33	16.87
2.67	10.47
5.67	14.73
82.00	45.20
22.33	29.23
19.00	20.77
2.33	18.60
18.67	23.60
11.00	39.20
27.00	41.00
41.33	44.10
5.00	11.50
39.33	48.57
9.67	22.03

5.67	11.87
5.33	8.70
7.00	9.60
2.67	5.50
12.33	9.70
3.33	9.13
16.00	27.37
5.67	13.07
4.33	10.30
4.67	11.20
5.00	15.13
13.00	17.63
7.00	16.93
2.33	5.57
27.33	28.97
8.00	11.10
10.67	29.67
2.67	9.73
31.67	20.40
3.33	19.60
240.33	65.30
7.00	26.40
3.67	10.60
10.33	20.97

2.67	11.50
18.00	37.93
5.33	34.20
7.33	24.87
5.00	29.17
14.67	46.47
2.67	19.60
7.33	23.77
4.67	15.23
2.00	10.60
14.00	35.17
19.67	58.77
6.67	30.93
15.67	41.53
61.33	56.60
12.00	20.60
54.33	40.23
17.33	39.33
4.00	14.77
2.00	3.40
16.00	38.07
2.00	7.60
34.67	34.57
2.67	11.07
2.67	9.37

6.67	17.57
2.67	6.33
5.33	39.67
3.00	7.37
5.33	17.40
5.67	27.87
3.00	38.43
6.33	15.13
8.00	21.57
30.00	39.07
2.67	20.03
17.33	31.53
2.67	4.40
5.00	28.17
5.33	12.20
3.00	10.93
7.33	40.40
17.33	49.10
3.67	29.10
8.33	11.07
3.67	20.43
15.67	20.40
13.33	37.83
4.00	15.77
5.67	11.07
14.00	24.30
51.67	35.07

4.67	8.87
71.33	32.47
8.67	19.20
4.33	20.77
52.33	28.93
17.00	27.77
2.00	14.70
9.00	4.40
3.33	37.47
3.00	5.20
38.67	48.17
34.00	37.53
7.33	16.63
9.67	11.97
7.67	21.17
28.00	22.50
7.00	33.50
6.33	33.73
3.00	12.40
2.67	10.70
5.67	11.27
18.33	33.97

2.00	2.33
10.00	22.57
23.67	40.53
4.67	5.57
4.00	12.40
5.67	19.23
2.67	7.63
3.67	10.30
17.67	31.73
3.00	30.00
24.33	22.73
21.00	31.30
47.33	26.53
26.33	22.43
3.33	23.03
2.00	16.40
6.67	35.57
5.33	12.40
5.33	22.10
2.67	2.83
3.33	11.93

11.67	35.23
6.67	28.47
3.67	8.70
2.00	5.30
6.33	15.27
55.00	38.43
17.67	16.83
25.00	17.17
3.33	14.33
11.00	26.17
8.67	19.73
22.33	29.27
14.00	14.10
2.00	5.30
12.00	17.83
7.00	18.47
35.00	41.17
22.67	41.63
5.00	20.90
8.33	5.57
5.33	9.13
4.33	12.07
25.33	31.90

3.00	19.93
9.00	12.30
10.67	24.10
3.33	7.67
4.33	7.33
4.00	11.20
4.67	15.07
29.67	34.63
6.00	33.80
4.67	13.33
6.33	18.90
4.67	19.00
3.33	7.97
5.33	12.93
2.67	11.07
9.67	10.73
17.00	22.00
15.00	26.50
70.67	31.93
2.67	10.30
2.67	10.07

6.00	15.90
3.00	8.30
20.00	33.57
4.00	24.67
6.67	28.47
2.33	3.57
4.00	13.80
7.00	53.07
5.33	26.17
4.00	29.70
11.00	29.27
40.33	29.17
6.67	8.47
6.33	18.53
50.00	50.73
56.00	39.67
16.67	28.43
106.67	59.70
7.67	13.50
8.00	26.10
9.00	27.13
7.33	13.60
9.67	22.03

8.33	21.67
15.00	16.63
6.00	13.13
11.00	18.63
6.33	13.23
14.67	22.37
5.00	6.83
24.67	72.87
43.33	42.80
56.00	34.03
8.00	26.80
4.33	7.53
3.00	16.33
5.00	7.90
14.67	23.37
4.00	21.37
24.67	25.37
3.00	14.30
20.00	15.37
3.33	12.63
5.00	14.80
54.00	47.53
9.67	32.37

13.33	25.27
2.67	8.20
2.33	4.53
3.33	10.60
2.67	8.77
48.33	38.60
23.33	47.67
4.67	12.00
9.67	12.67
28.00	30.93
10.67	40.27
4.33	16.97
12.67	22.40
2.00	3.40
2.33	8.60
22.00	22.87
48.00	24.30
5.67	17.63
85.00	54.47
3.00	11.30
3.33	12.53

4.00	5.37
7.67	52.27
31.00	30.43
13.33	23.20
11.67	20.70
7.33	23.83
46.33	33.67
5.33	9.37
11.67	6.20
29.67	33.97
7.33	9.80
10.33	11.90
10.33	30.10
2.33	8.27
4.33	8.97
13.00	19.83
4.67	23.00
2.67	12.63
17.67	23.57
17.33	28.47
3.67	11.03
23.67	15.43

3.00	10.37
12.00	23.00
31.00	24.27
6.00	27.90
6.33	12.93
3.00	27.13
7.00	13.13
13.00	19.60
2.00	6.57
8.67	19.07
10.67	37.40
5.67	20.30
5.33	17.97
4.33	12.03
3.67	7.97
3.00	10.00
2.00	5.47
4.33	13.50
4.33	5.80
51.67	39.30
23.67	28.53

6.00	27.87
11.00	7.70
21.67	24.83
2.33	10.80
6.33	18.20
11.00	31.60
11.33	21.30
6.00	16.00
5.67	4.50
6.33	14.50
2.33	3.23
27.00	53.17
10.00	21.17
5.33	7.60
3.33	22.53
14.33	20.83
3.67	23.13
5.00	7.27
3.00	6.80
3.33	13.87
4.67	5.47
54.67	38.67
8.00	21.87
49.67	44.93
13.67	47.87

373.33	66.63
4.67	15.43
6.00	16.97
6.33	14.50
20.67	33.73
3.33	7.43
4.67	15.43
8.67	12.37
9.33	17.67
8.33	14.57
7.00	14.33
7.67	18.93
3.00	6.10
20.33	39.33
12.33	33.80
7.67	10.93
13.33	35.87
3.00	10.13
5.67	10.57
18.67	31.90
3.33	19.27
5.00	36.20
5.33	14.60
2.00	5.07
2.67	9.83
2.33	7.00
9.67	17.50
4.33	18.07

8.67	9.33
15.33	16.17
2.33	17.30
3.33	10.93
3.67	6.47
5.00	16.77
4.00	6.43
9.33	14.37
22.00	13.77
3.67	10.43
3.67	7.13
9.33	14.70
7.00	29.73
14.67	27.17
6.33	26.93
3.00	23.07
3.67	5.30
4.33	13.03
3.67	12.57
15.33	19.80
14.33	12.37
6.33	9.80
2.67	9.17

3.00	5.10
3.33	24.80
11.00	26.57
38.33	20.83
5.67	6.63
6.00	22.53
4.33	18.27
10.00	14.63
8.67	26.40
7.33	20.77
8.00	19.07
7.33	31.43
15.00	29.07
4.67	24.80
2.00	4.70
7.00	14.43
17.33	32.67
3.33	9.10
13.00	23.37
5.00	18.37
13.00	14.90
6.00	21.60
15.67	13.00
2.00	12.70
11.67	40.63

22.33	46.83
2.67	21.70
144.00	40.80
103.67	39.40
15.00	29.37
23.67	32.93
9.00	22.10
5.00	19.20
22.00	33.10
5.67	3.57
5.33	9.07
24.33	27.07
3.67	5.10
4.00	8.40
4.00	15.70
4.33	8.50
5.67	17.87
4.33	5.73
5.00	14.63
2.67	17.67
2.67	10.23
4.33	17.87

11.67	11.97
13.00	33.73
8.00	8.10
11.33	16.53
3.33	8.17
2.33	7.57
8.33	13.33
9.00	26.07
52.67	33.13
6.33	15.27
3.67	9.03
27.33	39.73
19.00	36.93
4.00	25.87
2.33	19.13
8.67	19.80
14.67	20.83
5.00	40.87
4.00	13.13
3.00	22.80
3.00	4.03
18.67	39.13
17.00	40.43
10.33	36.57
9.67	23.33

5.67	7.10
8.33	23.43
9.67	30.67
7.67	18.77
2.00	14.40
2.00	3.57
3.67	17.43
2.00	7.50
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13.00	13.57
33.00	19.73
4.00	18.73
4.33	19.20
6.33	7.73
4.67	14.27
22.00	21.20
9.67	17.87
15.00	29.90
15.67	17.07
7.67	10.70

18.00	41.03
3.67	12.27
4.67	19.70
17.00	29.07
4.00	3.53
32.67	28.10
11.33	30.47
3.33	14.70
73.67	43.93
7.67	18.10
3.00	10.43
2.33	15.70
2.00	10.30
3.33	17.13
2.33	14.80
3.67	10.40
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20.00	20.13
9.33	13.40
61.67	54.40
22.67	11.97
28.67	34.83
42.33	40.90

4.67	26.20
26.33	44.00
55.33	28.63
5.33	16.70
10.00	15.27
18.33	34.80
4.67	9.27
11.33	29.13
4.33	21.27
2.00	9.20
8.00	14.73
3.67	4.47
4.00	10.03
2.33	10.70
5.33	12.83
4.00	14.37
3.33	14.63
3.33	15.57
2.33	9.67
19.33	19.03
25.67	14.97
17.00	21.20

9.67	14.67
12.67	25.03
4.00	13.80
7.67	17.63
5.33	12.17
53.00	60.37
3.00	10.93
19.67	16.13
13.00	24.10
9.33	19.17
5.33	10.67
4.00	30.13
4.33	7.03
2.33	8.17
3.33	14.77
5.00	9.53
20.33	40.97
8.33	22.00
8.33	14.57
4.67	8.43
12.33	24.83
2.33	4.23
47.00	34.90

7.00	15.50
2.67	9.90
3.33	25.33
8.00	33.90
2.00	20.60
8.67	23.10
4.33	15.87
30.00	21.80
13.33	7.37
3.00	3.20
4.67	17.27
11.67	25.93
4.67	22.07
22.67	16.37
11.00	16.00
5.33	16.93
2.00	13.10
3.33	13.27
2.00	3.50
8.33	16.17
13.00	19.70
5.67	39.30
4.00	6.27

12.33	15.47
7.00	19.00
21.33	17.03
6.00	28.13
12.33	20.20
6.00	11.30
11.00	30.50
7.33	10.73
2.67	11.53
7.00	32.93
4.33	7.40
15.33	24.50
3.00	11.43
2.00	10.50
39.00	18.87
2.33	26.27
9.00	24.07
11.33	20.20
21.33	22.53
4.67	23.63

4.67	18.90
3.33	20.50
7.33	30.40
8.33	60.37
2.33	5.47
3.00	25.80
3.00	4.03
3.33	13.70
35.00	32.70
5.67	23.83
9.67	17.27
4.67	26.53
2.67	20.40
34.67	42.33
2.00	7.60
3.33	7.40
31.00	42.40
7.33	16.73
6.33	17.63
19.67	37.83
2.00	14.30
8.00	15.00
3.33	5.50
11.33	27.00
3.67	6.93

9.67	33.17
5.00	13.57
13.67	34.20
51.00	37.23
10.67	19.43
4.67	29.43
4.67	27.97
3.67	12.23
7.00	13.33
8.67	40.50
2.33	20.43
8.67	23.33
6.67	25.17
5.33	17.33
8.33	19.57
5.67	6.63
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2.67	8.80

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5.00	12.07
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7.67	17.93
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3.00	15.70
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7.00	19.20
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3.67	5.07
3.00	6.87

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4.33	11.70
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7.00	12.77
4.67	37.30
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7.00	17.43
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2.00	5.13
2.67	11.53
2.00	12.00
4.67	5.60
9.33	12.27

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2.67	15.00
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11.00	14.23
4.00	6.00

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3.00	16.07
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24.00	24.33
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4.33	15.67
2.33	8.33

8.17	14.67
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4.00	17.00
3.67	9.00
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5.67	15.67
4.00	9.67
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7.00	14.00
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3.00	8.67
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17.00	11.00
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4.67	19.33
13.67	28.33
6.33	14.33

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2.67	8.33

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37.00	38.83
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3.00	10.33
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4.67	17.00
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3.33	12.33
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20.67	34.00
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29.17	32.33
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7.00	18.67

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13.83	20.00
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7.67	18.67

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2.67	4.67

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55.83	45.67
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5.00	10.33
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16.67	9.00
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9.00	19.00
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3.33	12.67
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9.00	8.07
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15.00	31.67

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8.33	8.93
12.00	19.43
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46.33	29.20
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39.00	48.57
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12.00	9.40
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2.67	9.90
2.67	9.73
59.67	53.50
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16.00	38.07
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7.67	18.93
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386075901

Protein identification

chromosomal replication initiation protein A

chromosomal replication initiation protein A

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

DNA polymerase III subunit beta

recombination protein RecF

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

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DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

hypothetical protein LA_0009

hypothetical protein LA_0009

hypothetical protein LA_0009
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outer membrane lipoprotein LipL21
outer membrane lipoprotein LipL21
DNA-directed DNA polymerase subunit delta
short chain dehydrogenase
short chain dehydrogenase
short chain dehydrogenase
short chain dehydrogenase
short chain dehydrogenase
short chain dehydrogenase
short chain dehydrogenase
short chain dehydrogenase
translation factor Sua5
translation factor Sua5
translation factor Sua5
hypothetical protein LA_0031
hypothetical protein LA_0031
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hypothetical protein LA_0031
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hypothetical protein LA_0031
hypothetical protein LA_0031
hypothetical protein LA_0032
inositol monophosphatase family protein
inositol monophosphatase family protein
inositol monophosphatase family protein
inositol monophosphatase family protein
inositol monophosphatase family protein
inositol monophosphatase family protein
inositol monophosphatase family protein
beta-galactosidase
HSP33-family chaperone
HSP33-family chaperone
ribonuclease R
ribonuclease R
ribonuclease R
glucose-methanol-choline oxidoreductase
glucose-methanol-choline oxidoreductase
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein

3-dehydroquininate dehydratase
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
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nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
NAD(P)(+) transhydrogenase subunit alpha
NAD(P)(+) transhydrogenase subunit alpha
NAD(P)(+) transhydrogenase subunit alpha
NAD(P)(+) transhydrogenase subunit alpha
NAD(P)(+) transhydrogenase subunit alpha
NAD(P)(+) transhydrogenase subunit alpha
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histidyl-tRNA synthetase
histidyl-tRNA synthetase
histidyl-tRNA synthetase
histidyl-tRNA synthetase
histidyl-tRNA synthetase
OmpA family protein
OmpA family protein
OmpA family protein
RlpA-like lipoprotein
RlpA-like lipoprotein
serine acetyltransferase
serine acetyltransferase
serine acetyltransferase
hypothetical protein LA_0067

hypothetical protein LA_0067
hypothetical protein LA_0067
hypothetical protein LA_0067
deoxycytidine triphosphate deaminase
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deoxycytidine triphosphate deaminase
deoxycytidine triphosphate deaminase
enoyl-CoA hydratase
enoyl-CoA hydratase
enoyl-CoA hydratase
enoyl-CoA hydratase
enoyl-CoA hydratase
hydrolase
SAM-dependent methyltransferase
SAM-dependent methyltransferase
SAM-dependent methyltransferase
diaminopimelate epimerase
diaminopimelate epimerase
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hypothetical protein LA_0085
hypothetical protein LA_0093
tRNA (uracil-5-)-methyltransferase
hypothetical protein LA_0102
hypothetical protein LA_0107
hypothetical protein LA_0107
hypothetical protein LA_0107
leucyl/phenylalanyl-tRNA--protein transferase
para-aminobenzoate synthase component I
cystathionine gamma-synthase
cystathionine gamma-synthase
cystathionine gamma-synthase
cystathionine gamma-synthase
cystathionine gamma-synthase
cystathionine gamma-synthase
cystathionine gamma-synthase
peptide chain release factor 1
hypothetical protein LA_0115
hypothetical protein LA_0117

hypothetical protein LA_0117
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 nudix hydrolase
 imidazoleglycerol-phosphate dehydratase/histidinol-phosphatase
 imidazoleglycerol-phosphate dehydratase/histidinol-phosphatase
 imidazoleglycerol-phosphate dehydratase/histidinol-phosphatase
 imidazole glycerol phosphate synthase subunit HisH
 phosphoribosylformimino-5-aminoimidazole carboxamide ribotide isomerase
 phosphoribosylformimino-5-aminoimidazole carboxamide ribotide isomerase
 phosphoribosylformimino-5-aminoimidazole carboxamide ribotide isomerase
 phosphoribosylformimino-5-aminoimidazole carboxamide ribotide isomerase
 hypothetical protein LA_0127
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 hypothetical protein LA_0127
 phosphomethylpyrimidine kinase protein
 phosphomethylpyrimidine kinase protein
 phosphomethylpyrimidine kinase protein
 phosphomethylpyrimidine kinase protein
 ribosome-associated GTPase
 ribosome-associated GTPase
 hypothetical protein LA_0135
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 hypothetical protein LA_0135
 TPR-repeat-containing protein
 TPR-repeat-containing protein
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 TPR-repeat-containing protein
 TPR-repeat-containing protein
 TPR-repeat-containing protein
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 TPR-repeat-containing protein
 metal-dependent hydrolase of the beta-lactamase superfamily I
 metal-dependent hydrolase of the beta-lactamase superfamily I
 metal-dependent hydrolase of the beta-lactamase superfamily I
 metal-dependent hydrolase of the beta-lactamase superfamily I

hypothetical protein LA_0166
hypothetical protein LA_0166
hypothetical protein LA_0166
hypothetical protein LA_0166
preprotein translocase subunit YidC
preprotein translocase subunit YidC
preprotein translocase subunit YidC
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preprotein translocase subunit YidC
preprotein translocase subunit YidC
preprotein translocase subunit YidC
preprotein translocase subunit YidC
preprotein translocase subunit YidC
Jag-like RNA-binding protein
Jag-like RNA-binding protein
Jag-like RNA-binding protein
Jag-like RNA-binding protein
Jag-like RNA-binding protein
Jag-like RNA-binding protein
Jag-like RNA-binding protein
hypothetical protein LA_0184
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hypothetical protein LA_0184
fumarate hydratase
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hypothetical protein LA_0205
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hypothetical protein LA_0206
hypothetical protein LA_0218
hypothetical protein LA_0218

hypothetical protein LA_0218

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

OmpA family lipoprotein

short-chain dehydrogenase

short-chain dehydrogenase

inositol monophosphatase family protein

inositol monophosphatase family protein

inositol monophosphatase family protein

SCO1/SenC/PrrC family protein

cytochrome c oxidase polypeptide I

cytochrome c oxidase polypeptide I

cytochrome c oxidase polypeptide I

hypothetical protein LA_0247

hypothetical protein LA_0247

integral membrane protein with PIN domain

integral membrane protein with PIN domain

integral membrane protein with PIN domain

integral membrane protein with PIN domain

integral membrane protein with PIN domain

integral membrane protein with PIN domain

integral membrane protein with PIN domain

phosphoenolpyruvate carboxykinase

phosphoenolpyruvate carboxykinase

phosphoenolpyruvate carboxykinase

phosphoenolpyruvate carboxykinase

phosphoenolpyruvate carboxykinase

phosphoenolpyruvate carboxykinase

phosphoenolpyruvate carboxykinase

phosphoenolpyruvate carboxykinase

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phosphoenolpyruvate carboxykinase
phosphoenolpyruvate carboxykinase
phosphoenolpyruvate carboxykinase
hypothetical protein LA_0253

ParA

ParA

aspartyl/glutamyl-tRNA amidotransferase subunit B
aspartyl/glutamyl-tRNA amidotransferase subunit B
aspartyl/glutamyl-tRNA amidotransferase subunit B
aspartyl/glutamyl-tRNA amidotransferase subunit B
aspartyl/glutamyl-tRNA amidotransferase subunit B
aspartyl/glutamyl-tRNA amidotransferase subunit B

hypothetical protein LA_0263

hypothetical protein LA_0263

hypothetical protein LA_0263

hypothetical protein LA_0263

hypothetical protein LA_0264

hypothetical protein LA_0264

hypothetical protein LA_0271

hypothetical protein LA_0271

hypothetical protein LA_0272

hypothetical protein LA_0272

hypothetical protein LA_0272

hypothetical protein LA_0272

lipoprotein releasing system LolD

lipoprotein releasing system LolD

lipoprotein releasing system LolD

hypothetical protein LA_0276

hypothetical protein LA_0276

hypothetical protein LA_0276

hypothetical protein LA_0278

cAMP-binding protein

cAMP-binding protein

cAMP-binding protein

cAMP-binding protein

cAMP-binding protein

cAMP-binding protein

cAMP-binding protein

cAMP-binding protein

cAMP-binding protein

hypothetical protein LA_0284

[illegible]

hypothetical protein LA_0365
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hypothetical protein LA_0365
hypothetical protein LA_0365
ribose-5-phosphate isomerase
ribose-5-phosphate isomerase
ribose-5-phosphate isomerase
ribose-5-phosphate isomerase
hypothetical protein LA_0374
hypothetical protein LA_0374
hypothetical protein LA_0375

methyltransferase

ATP-dependent protease ClpA
ATP-dependent protease ClpA
ATP-dependent protease ClpA
ATP-dependent protease ClpA
ATP-dependent protease ClpA
ATP-dependent protease ClpA
ATP-dependent protease ClpA
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ATP-dependent protease ClpA
ATP-dependent protease ClpA
ATP-dependent protease ClpA

paraoxonase

paraoxonase

phosphohistidine phosphatase
phosphohistidine phosphatase

ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein

ABC transporter permease

hypothetical protein LA_0406
tryptophanyl-tRNA synthetase
tryptophanyl-tRNA synthetase
tryptophanyl-tRNA synthetase
tryptophanyl-tRNA synthetase
tryptophanyl-tRNA synthetase
hypothetical protein LA_0409

outer membrane lipoprotein-sorting protein

[illegible]

acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
hypothetical protein LA_0441
hypothetical protein LA_0441
RNA polymerase sigma subunit
hypothetical protein LA_0447
hypothetical protein LA_0447
hypothetical protein LA_0447
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
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acetyl-CoA acetyltransferase
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acetyl-CoA acetyltransferase
N-acetylmuramoyl-L-alanine amidase
N-acetylmuramoyl-L-alanine amidase
hypothetical protein LA_0462
hypothetical protein LA_0462
hypothetical protein LA_0462
riboflavin synthase subunit beta
riboflavin synthase subunit beta
riboflavin synthase subunit beta
riboflavin synthase subunit beta
transcription antitermination protein NusB
TPR-repeat-containing protein
TPR-repeat-containing protein
FOG:HEAT repeat protein
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
hypothetical protein LA_0471
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DNA helicase UvrD
hypothetical protein LA_0494
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flagellar motor protein
flagellar motor protein
hypothetical protein LA_0505
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hypothetical protein LA_0505
UDP-3-O-[3-hydroxymyristoyl] glucosamine N-acyltransferase
UDP-3-O-[3-hydroxymyristoyl] glucosamine N-acyltransferase
hypothetical protein LA_0532
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
hydrolase
transcriptional regulator
transcriptional regulator
transcriptional regulator
hypothetical protein LA_0543
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hypothetical protein LA_0547
phosphoribosyl-AMP cyclohydrolase protein

periplasmic solute-binding protein
periplasmic solute-binding protein
periplasmic solute-binding protein
periplasmic solute-binding protein
periplasmic solute-binding protein
periplasmic solute-binding protein
periplasmic solute-binding protein

acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
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acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase

short-chain dehydrogenase

fatty acid transport protein

hypothetical protein LA_0575

hypothetical protein LA_0575

glutathione S-transferase-like protein
glutathione S-transferase-like protein
glutathione S-transferase-like protein
glutathione S-transferase-like protein

cell division protein FtsA
cell division protein FtsA
cell division protein FtsA
cell division protein FtsZ

shikimate 5-dehydrogenase

30S ribosomal protein S1
30S ribosomal protein S1
30S ribosomal protein S1
30S ribosomal protein S1
30S ribosomal protein S1
30S ribosomal protein S1

30S ribosomal protein S1
30S ribosomal protein S1
anti-sigma regulatory factor
anti-sigma regulatory factor
anti-sigma regulatory factor
excinuclease ABC subunit B
excinuclease ABC subunit B
excinuclease ABC subunit B
excinuclease ABC subunit B
excinuclease ABC subunit B
excinuclease ABC subunit B
excinuclease ABC subunit B
mannose-6-phosphate isomerase
mannose-6-phosphate isomerase
mannose-6-phosphate isomerase
mannose-6-phosphate isomerase
mannose-6-phosphate isomerase
metallo-beta-lactamase superfamily protein
metallo-beta-lactamase superfamily protein
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
oxidoreductase
oxidoreductase
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
aspartate kinase
aspartate kinase
aspartate kinase
aspartate kinase
aspartate kinase
aspartate kinase
aspartate kinase
hypothetical protein LA_0699
molybdate metabolism regulator
molybdate metabolism regulator
hypothetical protein LA_0720
hypothetical protein LA_0720

carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit
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carbamoyl phosphate synthase large subunit
carbamoyl phosphate synthase large subunit

peroxiredoxin-like protein

peroxiredoxin-like protein

elongation factor G

elongation factor G

elongation factor G

elongation factor Tu

elongation factor Tu

elongation factor Tu

elongation factor Tu

elongation factor Tu

elongation factor Tu

elongation factor Tu

elongation factor Tu

elongation factor Tu

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30S ribosomal protein S10
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50S ribosomal protein L3
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50S ribosomal protein L6
50S ribosomal protein L6
50S ribosomal protein L6
50S ribosomal protein L6
50S ribosomal protein L18
50S ribosomal protein L18
50S ribosomal protein L30
50S ribosomal protein L30
50S ribosomal protein L15
50S ribosomal protein L15

50S ribosomal protein L15
50S ribosomal protein L15
50S ribosomal protein L15
50S ribosomal protein L15
50S ribosomal protein L15
50S ribosomal protein L15
preprotein translocase subunit SecY
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
 adenylate kinase
translation initiation factor IF-1
translation initiation factor IF-1
 30S ribosomal protein S13
 30S ribosomal protein S13
 30S ribosomal protein S13
 30S ribosomal protein S11
 30S ribosomal protein S11
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
 30S ribosomal protein S4
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha

RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
RNA polymerase subunit alpha
50S ribosomal protein L17
50S ribosomal protein L17
50S ribosomal protein L17
50S ribosomal protein L17
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
L,L-diaminopimelate aminotransferase
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
aspartate carbamoyltransferase catalytic subunit
Zn-dependent hydrolase
Zn-dependent hydrolase
Zn-dependent hydrolase
Zn-dependent hydrolase
Zn-dependent hydrolase
SAM-dependent methyltransferase

citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
citrate synthase
transglycosylase
transglycosylase
hypothetical protein LA_0792
hypothetical protein LA_0792
hypothetical protein LA_0792
hypothetical protein LA_0798
cell shape determination protein
cell shape determination protein
cell shape determination protein
cell shape determination protein
cell shape determination protein
cell shape determination protein
pyridoxal phosphate biosynthesis protein
pyridoxal phosphate biosynthesis protein
pyridoxal phosphate biosynthesis protein
pyridoxal phosphate biosynthesis protein
pyridoxal phosphate biosynthesis protein
hypothetical protein LA_0803
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
trypsin-like serine protease
Holliday junction DNA helicase B
Holliday junction DNA helicase B
Holliday junction DNA helicase B
alpha/beta hydrolase-like protein
alpha/beta hydrolase-like protein

alpha/beta hydrolase-like protein
 transcriptional regulator
 transcriptional regulator
 thioesterase
 thioesterase
 thioesterase
 thioesterase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 pantothenate kinase
 pantothenate kinase
 pantothenate kinase
 pantothenate kinase
 UDP-N-acetylmuramoylalanine--D-glutamate ligase
 UDP-N-acetylmuramoylalanine--D-glutamate ligase
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 indole-3-glycerol-phosphate synthase
 indole-3-glycerol-phosphate synthase
 ribosomal RNA large subunit methyltransferase N
 2-isopropylmalate synthase
 2-isopropylmalate synthase
 2-isopropylmalate synthase
 2-isopropylmalate synthase
 3-demethylubiquinone-9 3-methyltransferase
 3-demethylubiquinone-9 3-methyltransferase
 50S ribosomal protein L21
 50S ribosomal protein L21
 50S ribosomal protein L21
 50S ribosomal protein L21
 50S ribosomal protein L21

NADH dehydrogenase (ubiquinone) chain D
NADH dehydrogenase (ubiquinone) chain D
NADH dehydrogenase (ubiquinone) chain D
NADH dehydrogenase (ubiquinone) chain D
NADH dehydrogenase (ubiquinone) chain D
NADH dehydrogenase (ubiquinone) chain D
NADH dehydrogenase (ubiquinone) chain C
NADH dehydrogenase (ubiquinone) chain C
NADH dehydrogenase (ubiquinone) chain C
NADH dehydrogenase (ubiquinone) chain C
NADH dehydrogenase (ubiquinone) chain C
NADH dehydrogenase (ubiquinone) chain C
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MarR family transcriptional regulator
MarR family transcriptional regulator
MarR family transcriptional regulator
methylase
methylase
methylase
hypothetical protein LA_0908
methylglyoxal synthase
methylglyoxal synthase
methylglyoxal synthase
methylglyoxal synthase
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
NHL repeat protein
NHL repeat protein
NHL repeat protein
NHL repeat protein
NHL repeat protein
NHL repeat protein
NHL repeat protein
NHL repeat protein
NHL repeat protein
enoyl-CoA hydratase
enoyl-CoA hydratase

[illegible]

[illegible]

histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
cell shape determination protein
cell shape determination protein
cell shape determination protein
cell shape determination protein
cell shape determination protein
membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
diaminopimelate decarboxylase
hypothetical protein LA_1052
hypothetical protein LA_1052
hypothetical protein LA_1052
hypothetical protein LA_1052
hypothetical protein LA_1052
hypothetical protein LA_1053
hypothetical protein LA_1053
aminopeptidase N
aminopeptidase N
aminopeptidase N
ADP-ribose pyrophosphatase
TPR-repeat lipoprotein
hypothetical protein LA_1087
hypothetical protein LA_1087
hypothetical protein LA_1087
hypothetical protein LA_1087
hypothetical protein LA_1088
hypothetical protein LA_1092
hypothetical protein LA_1092
hypothetical protein LA_1092

hypothetical protein LA_1097
hypothetical protein LA_1099
hypothetical protein LA_1099
hypothetical protein LA_1099
hypothetical protein LA_1099
hypothetical protein LA_1099
hypothetical protein LA_1099

succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
succinyl-CoA synthetase subunit alpha
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succinyl-CoA synthetase subunit beta
succinyl-CoA synthetase subunit beta
succinyl-CoA synthetase subunit beta
succinyl-CoA synthetase subunit beta
succinyl-CoA synthetase subunit beta
succinyl-CoA synthetase subunit beta

hypothetical protein LA_1107
hypothetical protein LA_1107
hypothetical protein LA_1107
hypothetical protein LA_1107
hypothetical protein LA_1107
hypothetical protein LA_1107
hypothetical protein LA_1107

adenylosuccinate synthase
adenylosuccinate synthase
adenylosuccinate synthase
adenylosuccinate synthase

adenylosuccinate synthase
 adenylosuccinate synthase
 ATP phosphoribosyltransferase regulatory subunit
 ATP phosphoribosyltransferase regulatory subunit
 ATP phosphoribosyltransferase regulatory subunit
 ATP phosphoribosyltransferase regulatory subunit
 ATP phosphoribosyltransferase regulatory subunit
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 hypothetical protein LA_1118
 hypothetical protein LA_1118
 hypothetical protein LA_1118
 dUTP diphosphatase
 dUTP diphosphatase
 dUTP diphosphatase
 phosphoglycerate dehydrogenase and related dehydrogenase
 phosphoglycerate dehydrogenase and related dehydrogenase
 phosphoglycerate dehydrogenase and related dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 hypothetical protein LA_1132
 hypothetical protein LA_1132
 hypothetical protein LA_1132
 outer membrane lipoprotein-sorting protein
 outer membrane lipoprotein-sorting protein
 outer membrane lipoprotein-sorting protein
 outer membrane lipoprotein-sorting protein
 hypothetical protein LA_1137
 hypothetical protein LA_1137
 hypothetical protein LA_1137
 hypothetical protein LA_1137

hypothetical protein LA_1137
 hypothetical protein LA_1137
 hypothetical protein LA_1137
 hypothetical protein LA_1137
 2-methylthioadenine synthetase
 2-methylthioadenine synthetase
 2-methylthioadenine synthetase
 2-methylthioadenine synthetase
 anthranilate phosphoribosyl transferase
 anthranilate phosphoribosyl transferase
 anthranilate phosphoribosyl transferase
 anthranilate phosphoribosyl transferase
 anthranilate phosphoribosyl transferase
 anthranilate phosphoribosyl transferase
 anthranilate phosphoribosyl transferase
 preprotein translocase subunit YajC
 preprotein translocase subunit YajC
 preprotein translocase subunit YajC
 preprotein translocase subunit YajC
 pyrimidine deaminase, riboflavin biosynthesis
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 bifunctional 3,4-dihydroxy-2-butanone 4-phosphate synthase/GTP cyclohydrolase II
 sulfate ABC transporter substrate-binding protein
 sulfate ABC transporter substrate-binding protein
 sulfate ABC transporter substrate-binding protein
 sulfate ABC transporter substrate-binding protein
 sulfate ABC transporter substrate-binding protein
 sulfate ABC transporter substrate-binding protein
 sulfate ABC transporter substrate-binding protein
 acetyl-CoA synthetase
 acetyl-CoA synthetase
 acetyl-CoA synthetase
 ABC transporter substrate-binding protein
 ABC transporter substrate-binding protein
 ABC transporter substrate-binding protein
 recombination factor protein RarA
 recombination factor protein RarA
 histidinol-phosphate aminotransferase
 histidinol-phosphate aminotransferase
 histidinol-phosphate aminotransferase
 histidinol-phosphate aminotransferase

histidinol-phosphate aminotransferase
histidinol-phosphate aminotransferase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
signal transduction protein
signal transduction protein
signal transduction protein
sigma 54 modulation protein
hypothetical protein LA_1190
hypothetical protein LA_1190
hypothetical protein LA_1190
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
hypothetical protein LA_1192
hypothetical protein LA_1192
hypothetical protein LA_1192
3-hydroxybutyryl-CoA dehydratase
3-hydroxybutyryl-CoA dehydratase
3-hydroxybutyryl-CoA dehydratase
3-hydroxybutyryl-CoA dehydratase
3-hydroxybutyryl-CoA dehydratase
3-hydroxybutyryl-CoA dehydratase
RNA polymerase ECF-type sigma factor
RNA polymerase ECF-type sigma factor
hypothetical protein LA_1206
hypothetical protein LA_1206
hypothetical protein LA_1206
thioesterase superfamily protein
thioesterase superfamily protein
hypothetical protein LA_1209
methyl-accepting chemotaxis protein
metal-dependent hydrolase
metal-dependent hydrolase
metal-dependent hydrolase
membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
dihydrolipoamide acetyltransferase
dihydrolipoamide acetyltransferase
dihydrolipoamide acetyltransferase
dihydrolipoamide acetyltransferase
dihydrolipoamide acetyltransferase
dihydrolipoamide acetyltransferase

[illegible]

[illegible]

[illegible]

glutamine synthetase
glutamine synthetase
glutamine synthetase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
phosphoribosylformylglycinamidine (FGAM) synthase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
isoleucyl-tRNA synthetase
hypothetical protein LA_1326
hypothetical protein LA_1326
hypothetical protein LA_1326
hypothetical protein LA_1326
hypothetical protein LA_1329
hypothetical protein LA_1329
hypothetical protein LA_1329
hypothetical protein LA_1329
oxidoreductase
signal peptidase II
cAMP-binding protein
cAMP-binding protein
histidine kinase sensor protein
histidine kinase sensor protein
histidine kinase sensor protein
histidine kinase sensor protein
capsule biosynthesis protein CapA
capsule biosynthesis protein CapA
capsule biosynthesis protein CapA
capsule biosynthesis protein CapA
capsule biosynthesis protein CapA
hypothetical protein LA_1359
hypothetical protein LA_1359
hypothetical protein LA_1359
GTP-binding protein BipA

[illegible]

serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
serine hydroxymethyltransferase
lipoate protein ligase A
hypothetical protein LA_1413
2-methylisocitrate lyase
lactoylglutathione lyase
lactoylglutathione lyase
lactoylglutathione lyase
lactoylglutathione lyase
lactoylglutathione lyase
lactoylglutathione lyase
lactoylglutathione lyase
hypothetical protein LA_1420
hypothetical protein LA_1420
hypothetical protein LA_1420
serine/threonine kinase
serine/threonine kinase
serine/threonine kinase
serine/threonine kinase
serine/threonine kinase
serine/threonine kinase
serine/threonine kinase
hypothetical protein LA_1429
glucose kinase
glucose kinase
glucose kinase
antimicrobial peptide ABC transporter ATPase
hypothetical protein LA_1440
hypothetical protein LA_1440
hypothetical protein LA_1440
heavy metal efflux pump
heavy metal efflux pump
heavy metal efflux pump
heavy metal efflux pump
carboxy-terminal processing protease
carboxy-terminal processing protease
carboxy-terminal processing protease
carboxy-terminal processing protease
ABC transporter ATP-binding protein

UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 phosphoribosylaminoimidazole carboxylase catalytic subunit
 UDP-N-acetylmuramyl pentapeptide synthase
 UDP-N-acetylmuramyl pentapeptide synthase
 hypothetical protein LA_1479
 PLP dependent enzyme class III
 PLP dependent enzyme class III
 PLP dependent enzyme class III
 glycolate oxidase
 glycolate oxidase
 glycolate oxidase
 glycolate oxidase
 glycolate oxidase
 glycolate oxidase
 hypothetical protein LA_1495
 hypothetical protein LA_1495
 hypothetical protein LA_1495
 hypothetical protein LA_1495
 hypothetical protein LA_1495
 hypothetical protein LA_1495
 L-aspartate oxidase
 L-aspartate oxidase
 pyridoxal phosphate biosynthetic protein PdxJ
 pyridoxal phosphate biosynthetic protein PdxJ
 tRNA isopentenyltransferase
 tRNA isopentenyltransferase
 host factor I related protein
 mannose-1-phosphate guanylyltransferase
 mannose-1-phosphate guanylyltransferase
 mannose-1-phosphate guanylyltransferase
 mannose-1-phosphate guanylyltransferase
 mannose-1-phosphate guanylyltransferase
 chemotaxis protein CheW
 chemotaxis protein CheW
 signal transduction protein
 hypothetical protein LA_1530
 hypothetical protein LA_1530
 fructose-bisphosphate aldolase
 fructose-bisphosphate aldolase
 fructose-bisphosphate aldolase

nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase

hypothetical protein LA_1587

hypothetical protein LA_1587

hypothetical protein LA_1587

hypothetical protein LA_1587

hypothetical protein LA_1587

SAM-dependent methyltransferase

SAM-dependent methyltransferase

SAM-dependent methyltransferase

SAM-dependent methyltransferase

SAM-dependent methyltransferase

SAM-dependent methyltransferase

ABC transporter ATP-binding protein

ABC transporter ATP-binding protein

ABC transporter ATP-binding protein

ABC transporter ATP-binding protein

glycosyltransferase

glycosyltransferase

hypothetical protein LA_1604

hypothetical protein LA_1604

CMP-N-acetylneuraminic acid synthetase

nucleoside-diphosphate-sugar epimerase

nucleoside-diphosphate-sugar epimerase

nucleoside-diphosphate-sugar epimerase

nucleoside-diphosphate-sugar epimerase

pyridoxal phosphate-dependent aminotransferase

pyridoxal phosphate-dependent aminotransferase

UDP-N-acetylglucosamine 2-epimerase

UDP-N-acetylglucosamine 2-epimerase

UDP-N-acetylglucosamine 2-epimerase

nucleotidyl transferase

nucleotidyl transferase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase

N-acetylneuraminic (sialic) acid synthetase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
alcohol dehydrogenase
alcohol dehydrogenase
alcohol dehydrogenase
alcohol dehydrogenase
alcohol dehydrogenase
alcohol dehydrogenase
alcohol dehydrogenase
molybdenum cofactor biosynthesis protein
molybdenum cofactor biosynthesis protein
molybdenum cofactor biosynthesis protein
molybdenum cofactor biosynthesis protein
molybdenum cofactor biosynthesis protein
molybdenum cofactor biosynthesis protein
molybdenum cofactor biosynthesis protein
methyltransferase-like protein
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
carbamoyl transferase
acetyltransferase
acetyltransferase
2,4-dihydroxyhept-2-ene-1,7-dioic acid aldolase
2,4-dihydroxyhept-2-ene-1,7-dioic acid aldolase
3-deoxy-manno-octulosonate cytidyltransferase
3-deoxy-manno-octulosonate cytidyltransferase
3-deoxy-manno-octulosonate cytidyltransferase
3-deoxy-manno-octulosonate cytidyltransferase
oxidoreductase family protein

inositol monophosphatase family protein
inositol monophosphatase family protein
inositol monophosphatase family protein
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
nucleotidyl transferase
CDP-glucose 4,6-dehydratase
CDP-glucose 4,6-dehydratase
glycosyltransferase
polysaccharide deacetylase-like protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
polysaccharide biosynthesis protein
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
UDP-N-acetylglucosamine 2-epimerase
UDP-N-acetylglucosamine 2-epimerase
UDP-N-acetylglucosamine 2-epimerase
UDP-N-acetylglucosamine 2-epimerase
UDP-N-acetylglucosamine 2-epimerase
UDP-N-acetylglucosamine 2-epimerase
UDP-N-acetylglucosamine 2-epimerase
UDP-N-acetylglucosamine 2-epimerase
glycosyltransferase
glycosyltransferase
glycosyltransferase
hypothetical protein LA_1648
glycosyltransferase
hypothetical protein LA_1652
hypothetical protein LA_1652
hypothetical protein LA_1652

hypothetical protein LA_1652

FdtA-like protein

FdtA-like protein

pyridoxal phosphate-dependent aminotransferase

pyridoxal phosphate-dependent aminotransferase

pyridoxal phosphate-dependent aminotransferase

pyridoxal phosphate-dependent aminotransferase

glycosyltransferase

glycosyltransferase

glycosyltransferase

glycosyltransferase

dTDP-4-dehydrorhamnose 3,5-epimerase

dTDP-4-dehydrorhamnose 3,5-epimerase

dTDP-4-dehydrorhamnose 3,5-epimerase

dTDP-4-dehydrorhamnose 3,5-epimerase

dTDP-4-dehydrorhamnose 3,5-epimerase

dTDP-4-dehydrorhamnose reductase

glucose-1-phosphate thymidyltransferase

glucose-1-phosphate thymidyltransferase

glucose-1-phosphate thymidyltransferase

glucose-1-phosphate thymidyltransferase

glycosyltransferase

poly-gamma-glutamate synthesis protein

poly-gamma-glutamate synthesis protein

poly-gamma-glutamate synthesis protein

poly-gamma-glutamate synthesis protein

poly-gamma-glutamate synthesis protein

30S ribosomal protein S6

30S ribosomal protein S6

30S ribosomal protein S6

30S ribosomal protein S6

30S ribosomal protein S6

30S ribosomal protein S6

single-stranded DNA-binding protein

single-stranded DNA-binding protein

30S ribosomal protein S18

30S ribosomal protein S18

30S ribosomal protein S18

50S ribosomal protein L9

50S ribosomal protein L9

50S ribosomal protein L9

50S ribosomal protein L9

50S ribosomal protein L9

aspartyl-tRNA synthetase

aspartyl-tRNA synthetase

aspartyl-tRNA synthetase

aspartyl-tRNA synthetase

aspartyl-tRNA synthetase

membrane-associated HD superfamily hydrolase
membrane-associated HD superfamily hydrolase
competence-damage inducible protein CinA
competence-damage inducible protein CinA
competence-damage inducible protein CinA

[illegible][illegible]

glyceraldehyde 3-phosphate dehydrogenase

hypothetical protein LA_1715

hypothetical protein LA_1715

hypothetical protein LA_1715

hypothetical protein LA_1715

hypothetical protein LA_1715

hypothetical protein LA_1715

hypothetical protein LA_1715

hypothetical protein LA_1715

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

cysteine synthase

ABC transporter ATP-binding protein

ABC transporter ATP-binding protein

HD family protein

HD family protein

HD family protein

HD family protein

HD family protein

HD family protein

HD family protein

HD family protein

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1728

hypothetical protein LA_1733

hypothetical protein LA_1733
hypothetical protein LA_1733
anti-sigma factor antagonist-like protein
anti-sigma factor antagonist-like protein
anti-sigma factor antagonist-like protein
hypothetical protein LA_1740
hypothetical protein LA_1740
hypothetical protein LA_1740
acyltransferase

two component system sensor histidine kinase\response regulator
ppGpp-regulated growth inhibitor ChpA/MazF
transposase
transposase

hypothetical protein LA_1853
hypothetical protein LA_1853
hypothetical protein LA_1853
hypothetical protein LA_1853
ferric uptake regulator
ferric uptake regulator

hypothetical protein LA_1861
cysteinyI-tRNA synthetase
cysteinyI-tRNA synthetase
cysteinyI-tRNA synthetase
cysteinyI-tRNA synthetase
cysteinyI-tRNA synthetase

acetyl esterase
acetyl esterase
acetyl esterase
acetyl esterase
acetyl esterase
acetyl esterase
acetyl esterase

unctional 5,10-methylene-tetrahydrofolate dehydrogenase/ 5,10-methylene-tetrahydrofolate cyclohydrol
unctional 5,10-methylene-tetrahydrofolate dehydrogenase/ 5,10-methylene-tetrahydrofolate cyclohydrol
unctional 5,10-methylene-tetrahydrofolate dehydrogenase/ 5,10-methylene-tetrahydrofolate cyclohydrol
unctional 5,10-methylene-tetrahydrofolate dehydrogenase/ 5,10-methylene-tetrahydrofolate cyclohydrol
unctional 5,10-methylene-tetrahydrofolate dehydrogenase/ 5,10-methylene-tetrahydrofolate cyclohydrol

asparaginyI-tRNA synthetase
asparaginyI-tRNA synthetase
asparaginyI-tRNA synthetase
asparaginyI-tRNA synthetase
asparaginyI-tRNA synthetase
asparaginyI-tRNA synthetase
asparaginyI-tRNA synthetase
hypothetical protein LA_1867
hypothetical protein LA_1867

ATP-dependent helicase
ATP-dependent helicase

succinate dehydrogenase/fumarate reductase iron-sulfur subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate dehydrogenase flavoprotein subunit
succinate:quinone oxidoreductase (SQR)-like protein
aldo/keto oxidoreductase
aldo/keto oxidoreductase
aldo/keto oxidoreductase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
phosphoglycerate dehydrogenase and related dehydrogenase
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
hypothetical protein LA_1917
RNA-binding protein
RNA-binding protein
RNA-binding protein
RNA-binding protein
RNA-binding protein
RNA-binding protein
hypothetical protein LA_1924
hypothetical protein LA_1924
hypothetical protein LA_1927
hypothetical protein LA_1927
hypothetical protein LA_1927
thioredoxin
thioredoxin

CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
CAP family transcription factor
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
hypothetical protein LA_1935
hypothetical protein LA_1935
hypothetical protein LA_1935
hypothetical protein LA_1935
hydrolase/acyltransferase
hydrolase/acyltransferase
hydrolase/acyltransferase
hydrolase/acyltransferase
hydrolase/acyltransferase
hydrolase/acyltransferase
hydrolase/acyltransferase
hydrolase/acyltransferase
hydrolase/acyltransferase
hypothetical protein LA_1939
hypothetical protein LA_1939
hypothetical protein LA_1939
hypothetical protein LA_1946
hypothetical protein LA_1947
hypothetical protein LA_1947
hypothetical protein LA_1947

[illegible]

flagellin protein

O-acetylhomoserine/O-acetylserine sulfhydrylase
O-acetylhomoserine/O-acetylserine sulfhydrylase
O-acetylhomoserine/O-acetylserine sulfhydrylase
O-acetylhomoserine/O-acetylserine sulfhydrylase
O-acetylhomoserine/O-acetylserine sulfhydrylase
O-acetylhomoserine/O-acetylserine sulfhydrylase

cytoplasmic membrane protein
cytoplasmic membrane protein
cytoplasmic membrane protein
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066
hypothetical protein LA_2066

HflC membrane associated protease
HflC membrane associated protease
HflC membrane associated protease
HflC membrane associated protease
HflC membrane associated protease
HflC membrane associated protease
HflC membrane associated protease
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
hypothetical protein LA_2078

flagellar motor switch protein FliM
glycosyltransferase
glycosyltransferase

ABC transporter ATP-binding protein
isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit

isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit
isopropylmalate isomerase large subunit
3-isopropylmalate dehydratase small subunit
3-isopropylmalate dehydratase small subunit
3-isopropylmalate dehydratase small subunit
3-isopropylmalate dehydratase small subunit
3-isopropylmalate dehydratase small subunit
3-isopropylmalate dehydratase small subunit
3-isopropylmalate dehydratase small subunit
cysteine synthase
cysteine synthase
cysteine synthase
cysteine synthase
cysteine synthase
cysteine synthase
cysteine synthase
gamma-glutamyltranspeptidase
gamma-glutamyltranspeptidase
gamma-glutamyltranspeptidase
gamma-glutamyltranspeptidase
ATP-grasp enzyme
ATP-grasp enzyme
ATP-grasp enzyme
ATP-grasp enzyme
glutaredoxin-like protein
glutaredoxin-like protein
BolA family protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
dihydrolipoamide dehydrogenase
metal-dependent hydrolase
metal-dependent hydrolase
glycerol kinase
glycerol kinase
glycerol kinase
glycerol kinase
glycerol kinase
glycerol kinase
hypothetical protein LA_2121
periplasmic serine protease
periplasmic serine protease
periplasmic serine protease
hypothetical protein LA_2127
DNA or RNA helicase
DNA or RNA helicase

malate dehydrogenase
malate dehydrogenase
malate dehydrogenase
malate dehydrogenase
8-amino-7-oxononanoate synthase
8-amino-7-oxononanoate synthase
dethiobiotin synthetase
dethiobiotin synthetase
adenosylmethionine-8-amino-7-oxononanoate aminotransferase
adenosylmethionine-8-amino-7-oxononanoate aminotransferase
adenosylmethionine-8-amino-7-oxononanoate aminotransferase
adenosylmethionine-8-amino-7-oxononanoate aminotransferase
DNA mismatch repair protein MutS
DNA mismatch repair protein MutS
DNA mismatch repair protein MutS
DNA mismatch repair protein MutS
DNA mismatch repair protein MutS
DNA mismatch repair protein MutS
DNA mismatch repair protein MutS
hypothetical protein LA_2150
two-component system signal receiver
two-component system signal receiver
two-component system signal receiver
two-component system signal receiver
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
acetylornithine aminotransferase
acetylornithine aminotransferase
acetylornithine aminotransferase
acetylornithine aminotransferase
acetylornithine aminotransferase
acetylornithine aminotransferase
acetylornithine aminotransferase
phosphomannomutase
phosphomannomutase
phosphomannomutase
phosphomannomutase
50S ribosomal protein L28
50S ribosomal protein L28
50S ribosomal protein L28
acyl-CoA hydrolase
acyl-CoA hydrolase
glycosyltransferase
glycosyltransferase

2,4-dienoyl-CoA reductase

2,4-dienoyl-CoA reductase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

isopropylmalate/homocitrate/citramalate synthase

periplasmic serine protease

periplasmic serine protease

periplasmic serine protease

periplasmic serine protease

periplasmic serine protease

periplasmic serine protease

periplasmic serine protease

excinuclease ABC subunit A

excinuclease ABC subunit A

excinuclease ABC subunit A

excinuclease ABC subunit A

excinuclease ABC subunit A

excinuclease ABC subunit A

excinuclease ABC subunit A

excinuclease ABC subunit A

excinuclease ABC subunit A

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase\response regulator

two component system sensor histidine kinase

two component system sensor histidine kinase

fructose-1,6-bisphosphatase

fructose-1,6-bisphosphatase

fructose-1,6-bisphosphatase

fructose-1,6-bisphosphatase

fructose-1,6-bisphosphatase

fructose-1,6-bisphosphatase
fructose-1,6-bisphosphatase
fructose-1,6-bisphosphatase
hypothetical protein LA_2230

DNA primase

DNA primase

DNA primase

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

RNA polymerase sigma-70 factor

glycerol-3-phosphate dehydrogenase

glycerol-3-phosphate dehydrogenase

glycerol-3-phosphate dehydrogenase

glycerol-3-phosphate dehydrogenase

glycerol-3-phosphate dehydrogenase

glycerol-3-phosphate dehydrogenase

glycerol-3-phosphate dehydrogenase

glycerol-3-phosphate dehydrogenase

tyrosyl-tRNA synthetase

hypothetical protein LA_2244

hypothetical protein LA_2244

hypothetical protein LA_2244

hypothetical protein LA_2244

hypothetical protein LA_2244

hypothetical protein LA_2244

hypothetical protein LA_2244

DJ-1/PfpI family intracellular protease

DJ-1/PfpI family intracellular protease

hypothetical protein LA_2255

hypothetical protein LA_2255

hypothetical protein LA_2255

hypothetical protein LA_2255

alkylglycerone-phosphate synthase

alkylglycerone-phosphate synthase

alkylglycerone-phosphate synthase

alkylglycerone-phosphate synthase

alkylglycerone-phosphate synthase

alkylglycerone-phosphate synthase

alkylglycerone-phosphate synthase
 enoyl-CoA hydratase
 enoyl-CoA hydratase
 enoyl-CoA hydratase
 enoyl-CoA hydratase
 enoyl-CoA hydratase
 hypothetical protein LA_2266
 TPR-repeat-containing protein
 hypothetical protein LA_2268
 hypothetical protein LA_2268
 cysteine desulfhydrase
 hypothetical protein LA_2277
 endoflagellar biosynthesis chaperone
 phosphoribosylglycinamide formyltransferase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase
 translaldolase
 translaldolase
 translaldolase
 translaldolase
 translaldolase
 translaldolase
 translaldolase
 translaldolase
 pseudouridylate synthase
 hypothetical protein LA_2297
 hypothetical protein LA_2297
 hypothetical protein LA_2297
 hypothetical protein LA_2297
 hypothetical protein LA_2300
 hypothetical protein LA_2300
 hypothetical protein LA_2300
 hypothetical protein LA_2300
 hypothetical protein LA_2301
 hypothetical protein LA_2301
 hypothetical protein LA_2301
 hypothetical protein LA_2301
 hypothetical protein LA_2301
 hypothetical protein LA_2302
 hypothetical protein LA_2302

[illegible]

transcriptional regulator
transcriptional regulator
transcriptional regulator
3-polyprenyl-4-hydroxybenzoate decarboxylase
3-polyprenyl-4-hydroxybenzoate decarboxylase
3-polyprenyl-4-hydroxybenzoate decarboxylase
A/G specific adenine glycosylase
A/G specific adenine glycosylase
GTP-dependent nucleic acid-binding protein EngD
GTP-dependent nucleic acid-binding protein EngD
GTP-dependent nucleic acid-binding protein EngD
GTP-dependent nucleic acid-binding protein EngD
GTP-dependent nucleic acid-binding protein EngD
GTP-dependent nucleic acid-binding protein EngD
3-polyprenyl-4-hydroxybenzoate decarboxylase
3-polyprenyl-4-hydroxybenzoate decarboxylase
3-polyprenyl-4-hydroxybenzoate decarboxylase
hypothetical protein LA_2336
chromosome partitioning ATPase
chromosome partitioning ATPase
chromosome partitioning ATPase
chromosome partitioning ATPase
chromosome partitioning ATPase
biotin-requiring enzyme
hypothetical protein LA_2340
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease peptidase subunit
ATP-dependent protease peptidase subunit
ATP-dependent protease peptidase subunit
ATP-dependent protease peptidase subunit
peptidyl-tRNA hydrolase
peptidyl-tRNA hydrolase
peptidyl-tRNA hydrolase
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
isopropylmalate/homocitrate/citramalate synthase
hypothetical protein LA_2352
hypothetical protein LA_2352
hypothetical protein LA_2352
hypothetical protein LA_2352

permease
exodeoxyribonuclease VII small subunit
exodeoxyribonuclease VII small subunit
hypothetical protein LA_2365
hypothetical protein LA_2365
hypothetical protein LA_2366
actin-like ATPase involved in cell division
actin-like ATPase involved in cell division
actin-like ATPase involved in cell division
actin-like ATPase involved in cell division
actin-like ATPase involved in cell division
actin-like ATPase involved in cell division
actin-like ATPase involved in cell division
actin-like ATPase involved in cell division
type II secretory pathway component protein G
type II secretory pathway component protein F
type II secretory pathway component protein F
type II secretory pathway ATPase protein E
type II secretory pathway ATPase protein E
type II secretory pathway ATPase protein E
type II secretory pathway ATPase protein E
type II secretory pathway ATPase protein E
type II secretory pathway ATPase protein E
type II secretory pathway component protein C
type II secretory pathway component protein C
type II secretory pathway component protein C
type II secretory pathway component protein C
type II secretory pathway component protein C
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
50S ribosomal protein L19
50S ribosomal protein L19
50S ribosomal protein L19
50S ribosomal protein L19
50S ribosomal protein L19
50S ribosomal protein L19
50S ribosomal protein L19
tRNA (guanine-N1)-methyltransferase
tRNA (guanine-N1)-methyltransferase
tRNA (guanine-N1)-methyltransferase
RNA-binding protein
RNA-binding protein

ribulose-5-phosphate 3-epimerase
 ribulose-5-phosphate 3-epimerase
 ribulose-5-phosphate 3-epimerase
 hypothetical protein LA_2395
 hypothetical protein LA_2395
 hypothetical protein LA_2395
 hypothetical protein LA_2395
 hypothetical protein LA_2395
 hypothetical protein LA_2395
 hypothetical protein LA_2395
 hypothetical protein LA_2395
 primosomal protein N
 primosomal protein N
 hypothetical protein LA_2399
 hypothetical protein LA_2399
 response regulator of two component system
 response regulator of two component system
 HPr kinase/phosphorylase
 HPr kinase/phosphorylase
 HPr kinase/phosphorylase
 DNA-directed RNA polymerase sigma-54 subunit
 DNA-directed RNA polymerase sigma-54 subunit
 DNA-directed RNA polymerase sigma-54 subunit
 DNA-directed RNA polymerase sigma-54 subunit
 hypothetical protein LA_2406
 hypothetical protein LA_2406
 glycerol-3-phosphate cytidyltransferase
 ADP-heptose synthetase
 ADP-heptose synthetase
 ADP-heptose synthetase
 ADP-heptose synthetase
 ADP-heptose synthetase
 cell wall-associated hydrolase/lipoprotein
 cell wall-associated hydrolase/lipoprotein
 cobalamin adenosyltransferase
 endoflagellar filament core protein
 endoflagellar filament core protein
 endoflagellar filament core protein
 endoflagellar filament core protein
 endoflagellar filament core protein
 endoflagellar filament core protein
 endoflagellar filament core protein
 biotin carboxylase-like protein
 biotin carboxylase-like protein
 biotin carboxylase-like protein
 biotin carboxylase-like protein
 biotin carboxylase-like protein

biotin carboxylase-like protein
biotin carboxylase-like protein
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biotin carboxylase-like protein

acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
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acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component

anti-sigma factor antagonist

serine/threonine phosphatase

peptide deformylase

peptide deformylase

peptide deformylase

peptide deformylase

peptide deformylase

heavy metal efflux pump

heavy metal efflux pump

heavy metal efflux pump

heavy metal efflux pump
 heavy metal efflux pump
 heavy metal efflux pump
 heavy metal efflux pump
 hypothetical protein LA_2456
 SMC-like protein
 anti-Sigma factor antagonist
 hypothetical protein LA_2465
 methyltransferase
 hypothetical protein LA_2467
 hypothetical protein LA_2467
 hypothetical protein LA_2467
 hypothetical protein LA_2468
 hypothetical protein LA_2468
 hypothetical protein LA_2468
 hypothetical protein LA_2468
 hypothetical protein LA_2468
 hypothetical protein LA_2468
 hypothetical protein LA_2468
 MCP methylation inhibitor
 MCP methylation inhibitor
 MCP methylation inhibitor
 integrase/recombinase XerD
 integrase/recombinase XerD
 hypothetical protein LA_2484
 hypothetical protein LA_2484
 thioredoxin reductase
 thioredoxin reductase
 thioredoxin reductase
 imidazoleglycerol-phosphate synthase
 imidazoleglycerol-phosphate synthase
 imidazoleglycerol-phosphate synthase
 imidazoleglycerol-phosphate synthase
 imidazoleglycerol-phosphate synthase
 imidazoleglycerol-phosphate synthase
 imidazoleglycerol-phosphate synthase
 aspartyl/glutamyl-tRNA amidotransferase subunit A
 aspartyl/glutamyl-tRNA amidotransferase subunit A
 aspartyl/glutamyl-tRNA amidotransferase subunit A
 aspartyl/glutamyl-tRNA amidotransferase subunit A
 aspartyl/glutamyl-tRNA amidotransferase subunit A
 aspartyl/glutamyl-tRNA amidotransferase subunit A
 aspartyl/glutamyl-tRNA amidotransferase subunit A
 hypothetical protein LA_2510
 hypothetical protein LA_2510
 cytoplasmic membrane lipoprotein LipL31
 cytoplasmic membrane lipoprotein LipL31
 cytoplasmic membrane lipoprotein LipL31

cytoplasmic membrane lipoprotein LipL31
cytoplasmic membrane lipoprotein LipL31
cytoplasmic membrane lipoprotein LipL31
cytoplasmic membrane lipoprotein LipL31
cytoplasmic membrane lipoprotein LipL31
cytoplasmic membrane lipoprotein LipL31

transcription-repair coupling factor
transcription-repair coupling factor
transcription-repair coupling factor
transcription-repair coupling factor

pantoate--beta-alanine ligase
histidinol dehydrogenase
histidinol dehydrogenase
histidinol dehydrogenase
histidinol dehydrogenase
histidinol dehydrogenase

hydrolase
hydrolase
hydrolase

GGDEF domain receiver component of a two component response regulator
GGDEF domain receiver component of a two component response regulator
GGDEF domain receiver component of a two component response regulator

hypothetical protein LA_2530
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase
peptidyl-prolyl cis-trans isomerase

adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase

hypothetical protein LA_2537
hypothetical protein LA_2537

ABC transporter ATPase
ABC transporter ATPase
cAMP-binding protein
cAMP-binding protein
cAMP-binding protein
cAMP-binding protein
cAMP-binding protein
cAMP-binding protein
cAMP-binding protein

alpha/beta hydrolase superfamily protein

FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase

RNA-binding protein

RNA-binding protein

ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit
ATP-dependent protease ATP-binding subunit

ATP-dependent protease ClpP

ATP-dependent protease ClpP

ATP-dependent protease ClpP

ATP-dependent protease ClpP

ATP-dependent protease ClpP

ATP-dependent protease ClpP

ATP-dependent protease ClpP

FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase
FKBP-type peptidyl-prolyl cis-trans isomerase

glycosylhydrolase

glycosylhydrolase

glycosylhydrolase

glycosylhydrolase

glycosylhydrolase

glycosylhydrolase

glycosylhydrolase

acetolactate synthase small subunit

acetolactate synthase small subunit

acetolactate synthase small subunit
acetolactate synthase large subunit
acetolactate synthase large subunit
acetolactate synthase large subunit
acetolactate synthase large subunit
acetolactate synthase large subunit
acetolactate synthase large subunit
acetolactate synthase large subunit
acetolactate synthase large subunit
acetolactate synthase large subunit

TPR-repeat-containing protein

TPR-repeat-containing protein

TPR-repeat-containing protein

TPR-repeat-containing protein

TPR-repeat-containing protein

TPR-repeat-containing protein

TPR-repeat-containing protein

TPR-repeat-containing protein

hypothetical protein LA_2575

hypothetical protein LA_2575

hypothetical protein LA_2575

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

hypothetical protein LA_2576

ferrous iron transport protein B

N-acetylneuraminic (sialic) acid synthetase

hypothetical protein LA_2584

hypothetical protein LA_2584

flagellar assembly protein H

flagellar switch complex protein

flagellar switch complex protein

flagellar MS-ring protein

flagellar MS-ring protein

flagellar MS-ring protein

flagellar protein FlbB

hypothetical protein LA_2596

polymerase

endoflagellar biogenesis protein

endoflagellar motor switch protein

endoflagellar motor switch protein

glutathione transferase

glutathione transferase

oligopeptidase A

oligopeptidase A

MaoC family prote

MaoC family protein

MaoC family protein

MaoC family protein

MaoC family protein

MaoC family protein

MaoC family protein

MaoC family protein

MaoC family protein

MaoC family protein

MaoC family protein

alcohol dehydrogenase

hypothetical protein LA_2632

hypothetical protein LA_2632

hypothetical protein LA_2632

hypothetical protein LA_2632

hypothetical protein LA_2632

hypothetical protein LA_2632

hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

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hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

hypothetical protein LA_2637

acyl-CoA dehydrogenase

acyl-CoA dehydrogenase

nucleoside-diphosphate-sugar epimerase

nucleoside-diphosphate-sugar epimerase

co-chaperonin GroES

co-chaperonin GroES

co-chaperonin GroES

co-chaperonin GroES

co-chaperonin GroES

co-chaperonin GroES

co-chaperonin GroES

chaperonin GroEL

chaperonin GroEL

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 chaperonin GroEL
 chaperonin GroEL
 chaperonin GroEL
 chaperonin GroEL
 chaperonin GroEL
 chaperonin GroEL
 chaperonin GroEL
 chaperonin GroEL
 ribonuclease BN
 ribonuclease BN
 ribonuclease BN
 flagellar basal body P-ring protein
 flagellar basal body P-ring protein
 flagellar basal body P-ring protein
 flagellar basal body P-ring protein
 hypothetical protein LA_2672
 hypothetical protein LA_2672
 metal-dependent amidase/aminoacylase/carboxypeptidase
 metal-dependent amidase/aminoacylase/carboxypeptidase
 metal-dependent amidase/aminoacylase/carboxypeptidase
 metal-dependent amidase/aminoacylase/carboxypeptidase
 aminopeptidase P
 aminopeptidase P
 aminopeptidase P
 aminopeptidase P
 aminopeptidase P
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 N6-adenine-specific DNA methylase
 N6-adenine-specific DNA methylase
 N6-adenine-specific DNA methylase
 N6-adenine-specific DNA methylase
 N6-adenine-specific DNA methylase
 N6-adenine-specific DNA methylase
 N6-adenine-specific DNA methylase
 acetylglutamate kinase
 D-alanine--D-alanine ligase
 L-lysine 2,3-aminomutase
 phosphoglycolate phosphatase
 phosphoglycolate phosphatase
 phosphoglycolate phosphatase

phosphoglycolate phosphatase
phosphoglycolate phosphatase
phosphoglycolate phosphatase
thiamine biosynthesis enzyme
thiamine biosynthesis enzyme
thiamine biosynthesis enzyme
hypothetical protein LA_2719
hypothetical protein LA_2719
hypothetical protein LA_2719

dioxygenase

dioxygenase

peptide chain release factor 3

peptide chain release factor 3

peptide chain release factor 3

peptide chain release factor 3

peptide chain release factor 3

acyltransferase

acyltransferase

acyltransferase

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

hypothetical protein LA_2738

pseudouridylate synthase

hypothetical protein LA_2741

sulfate ABC transporter substrate-binding protein

sulfate ABC transporter substrate-binding protein

sulfate ABC transporter substrate-binding protein

sulfate ABC transporter substrate-binding protein

sulfate ABC transporter substrate-binding protein

sulfate ABC transporter substrate-binding protein

6-pyruvoyl-tetrahydropterin synthase

6-pyruvoyl-tetrahydropterin synthase

6-pyruvoyl-tetrahydropterin synthase

transpeptidase/penicillin binding protein

transpeptidase/penicillin binding protein

transpeptidase/penicillin binding protein

rod shape-determining protein MreB

rod shape-determining protein MreB

rod shape-determining protein MreB

rod shape-determining protein MreB

rod shape-determining protein MreB
rod shape-determining protein MreB
rod shape-determining protein MreB
exopolyphosphatase
exopolyphosphatase
exopolyphosphatase
exopolyphosphatase
exopolyphosphatase
exopolyphosphatase
F0F1 ATP synthase subunit epsilon
F0F1 ATP synthase subunit epsilon
F0F1 ATP synthase subunit epsilon
F0F1 ATP synthase subunit delta
F0F1 ATP synthase subunit delta
F0F1 ATP synthase subunit delta
F0F1 ATP synthase subunit delta
F0F1 ATP synthase subunit delta
F0F1 ATP synthase subunit delta
F0F1 ATP synthase subunit B
F0F1 ATP synthase subunit B
signal peptidase I
transcriptional regulator
ABC transporter permease
ABC transporter permease
peroxiredoxin
peroxiredoxin
peroxiredoxin
peroxiredoxin
peroxiredoxin
peroxiredoxin
hypothetical protein LA_2821
hypothetical protein LA_2821
hypothetical protein LA_2821
hypothetical protein LA_2826
signal transduction protein
two-component system signal receiver
two-component system signal receiver
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
hypothetical protein LA_2836
hypothetical protein LA_2836
hypothetical protein LA_2836
hypothetical protein LA_2836
hypothetical protein LA_2836

ornithine carbamoyltransferase
ornithine carbamoyltransferase
ornithine carbamoyltransferase
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
response regulator with HD-GYP domain
flagellar hook protein FlgE
flagellar hook protein FlgE
flagellar hook protein FlgE
flagellar hook protein FlgE
flagellar hook protein FlgE
hypothetical protein LA_2859
cytoplasmic membrane protein
cytoplasmic membrane protein
translation initiation factor 2B
translation initiation factor 2B
translation initiation factor 2B
translation initiation factor 2B
translation initiation factor 2B
translation initiation factor 2B
polymerase
hypothetical protein LA_2877
transcriptional regulator
transcriptional regulator
transcriptional regulator
Holliday junction DNA helicase RuvA
Holliday junction DNA helicase RuvA
Holliday junction DNA helicase RuvA
Holliday junction DNA helicase RuvA
flavin reductase-like protein
flavin reductase-like protein
flavin reductase-like protein
ribonuclease D
ribonuclease D
ribonuclease D
alpha-galactosidase
alpha-galactosidase
alpha-galactosidase
alpha-galactosidase
alpha-galactosidase
alpha-galactosidase
alpha-galactosidase
two-component response regulator
two-component response regulator
GGDEF family protein
GGDEF family protein
hypothetical protein LA_2941

serine protease
serine protease
serine protease
serine protease
serine protease
hypothetical protein LA_2950
hypothetical protein LA_2950
two-component hybrid sensor and regulator
two-component hybrid sensor and regulator
two-component hybrid sensor and regulator
acyltransferase
acyltransferase
acyltransferase
methylmalonyl-CoA mutase
methylmalonyl-CoA mutase
methylmalonyl-CoA mutase
methylmalonyl-CoA mutase
methylmalonyl-CoA mutase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
dihydroxy-acid dehydratase
hypothetical protein LA_2967
hypothetical protein LA_2967
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
hypothetical protein LA_2973
hypothetical protein LA_2973
hypothetical protein LA_2986
uridine 5-monophosphate synthase
uridine 5-monophosphate synthase
NH(3)-dependent NAD(+) synthetase
NH(3)-dependent NAD(+) synthetase
NH(3)-dependent NAD(+) synthetase
hypothetical protein LA_2992
hypothetical protein LA_2992
hypothetical protein LA_2995

alcohol dehydrogenase
single-stranded DNA exonuclease
single-stranded DNA exonuclease
single-stranded DNA exonuclease
tRNA nucleotidyltransferase/poly A polymerase
tRNA nucleotidyltransferase/poly A polymerase
tRNA nucleotidyltransferase/poly A polymerase
tRNA nucleotidyltransferase/poly A polymerase
tRNA nucleotidyltransferase/poly A polymerase
tRNA nucleotidyltransferase/poly A polymerase
tRNA nucleotidyltransferase/poly A polymerase
M23 family metalloendopeptidase
M23 family metalloendopeptidase
prolipoprotein diacylglycerol transferase
prolipoprotein diacylglycerol transferase
prolipoprotein diacylglycerol transferase
prolipoprotein diacylglycerol transferase
hypothetical protein LA_3028
hypothetical protein LA_3028
hypothetical protein LA_3028
hypothetical protein LA_3028
hypothetical protein LA_3028
hypothetical protein LA_3028
hypothetical protein LA_3028
hypothetical protein LA_3028
hypothetical protein LA_3028
molybdate metabolism regulator
molybdate metabolism regulator
molybdate metabolism regulator
hypothetical protein LA_3039
hypothetical protein LA_3039
hypothetical protein LA_3039
hypothetical protein LA_3039
adenylate/guanylate cyclase
adenylate/guanylate cyclase
glutamate racemase
aminotransferase
aminotransferase
aminotransferase
aminotransferase
aminotransferase
aminotransferase
aminopeptidase
hypothetical protein LA_3055
hypothetical protein LA_3069
hypothetical protein LA_3069
hypothetical protein LA_3069
anti-sigma-factor antagonist

[illegible]

[illegible]

[illegible]

molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit
molybdopterin oxidoreductase iron-sulfur binding subunit

hypothetical protein LA_3268

hypothetical protein LA_3268

hypothetical protein LA_3268

1-deoxy-D-xylulose-5-phosphate synthase

1-deoxy-D-xylulose-5-phosphate synthase

adenylate cyclase related protein

adenylate cyclase related protein

adenylate cyclase related protein

adenylate cyclase related protein

adenylate cyclase related protein

adenylate cyclase related protein

adenylate cyclase related protein

adenylate cyclase related protein

adenylate cyclase related protein

tryptophan synthase subunit alpha

tryptophan synthase subunit alpha

tryptophan synthase subunit alpha

tryptophan synthase subunit alpha

tryptophan synthase subunit beta

tryptophan synthase subunit beta

tryptophan synthase subunit beta

tryptophan synthase subunit beta

tryptophan synthase subunit beta

tryptophan synthase subunit beta

tryptophan synthase subunit beta

prolyl-tRNA synthetase

prolyl-tRNA synthetase

prolyl-tRNA synthetase
prolyl-tRNA synthetase
prolyl-tRNA synthetase
prolyl-tRNA synthetase
prolyl-tRNA synthetase
zinc metalloprotease
zinc metalloprotease
zinc metalloprotease
zinc metalloprotease
zinc metalloprotease
zinc metalloprotease
CDP-diglyceride synthetase
undecaprenyl pyrophosphate synthase
undecaprenyl pyrophosphate synthase
ribosome recycling factor
ribosome recycling factor
ribosome recycling factor
ribosome recycling factor
ribosome recycling factor
uridylate kinase
uridylate kinase
uridylate kinase
uridylate kinase
elongation factor Ts
elongation factor Ts
elongation factor Ts
elongation factor Ts
cell shape determination protein
cell shape determination protein
hypothetical protein LA_3301
hypothetical protein LA_3301
hypothetical protein LA_3303
hypothetical protein LA_3303
hypothetical protein LA_3303
hypothetical protein LA_3303
hypothetical protein LA_3303
dihydrodipicolinate reductase
dihydrodipicolinate reductase
dihydrodipicolinate reductase
dihydrodipicolinate reductase
dihydrodipicolinate reductase
dihydrodipicolinate reductase
dihydrodipicolinate synthase
dihydrodipicolinate synthase
dihydrodipicolinate synthase
dihydrodipicolinate synthase
glyoxalase

[illegible]

[illegible]

30S ribosomal protein S12

DNA directed RNA polymerase subunit beta

[illegible]

DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta
DNA-directed RNA polymerase subunit beta

50S ribosomal protein L7/L12
50S ribosomal protein L7/L12
50S ribosomal protein L7/L12
50S ribosomal protein L7/L12
50S ribosomal protein L7/L12
50S ribosomal protein L7/L12
50S ribosomal protein L7/L12

50S ribosomal protein L10
50S ribosomal protein L10
50S ribosomal protein L10
50S ribosomal protein L10
50S ribosomal protein L10
50S ribosomal protein L10
50S ribosomal protein L10
50S ribosomal protein L10

50S ribosomal protein L1
50S ribosomal protein L1
50S ribosomal protein L1
50S ribosomal protein L1
50S ribosomal protein L1
50S ribosomal protein L1
50S ribosomal protein L1
50S ribosomal protein L1

50S ribosomal protein L11
50S ribosomal protein L11
50S ribosomal protein L11
50S ribosomal protein L11

transcription antiterminator
transcription antiterminator
transcription antiterminator
transcription antiterminator
transcription antiterminator
transcription antiterminator

DEAD/DEAH box helicase
DEAD/DEAH box helicase

DEAD/DEAH box helicase
 leucyl aminopeptidase
 leucyl aminopeptidase
 peroxiredoxin
 peroxiredoxin
 peroxiredoxin
 hypothetical protein LA_3453
 hypothetical protein LA_3453
 hypothetical protein LA_3453
 glycerol uptake facilitator protein
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 polyphosphate kinase
 outer membrane receptor for Fe³⁺-dicitrate/TonB-dependent receptor
 outer membrane receptor for Fe³⁺-dicitrate/TonB-dependent receptor
 outer membrane receptor for Fe³⁺-dicitrate/TonB-dependent receptor
 outer membrane receptor for Fe³⁺-dicitrate/TonB-dependent receptor
 outer membrane receptor for Fe³⁺-dicitrate/TonB-dependent receptor
 outer membrane receptor for Fe³⁺-dicitrate/TonB-dependent receptor
 thiol oxidoreductase
 thiol oxidoreductase
 hypothetical protein LA_3471
 hypothetical protein LA_3471
 esterase
 esterase
 esterase
 esterase
 hypothetical protein LA_3497
 hypothetical protein LA_3497
 hypothetical protein LA_3497
 hypothetical protein LA_3497
 hypothetical protein LA_3497
 phosphoribosylformylglycinamide (FGAM) synthase
 phosphoribosylformylglycinamide (FGAM) synthase
 phosphoribosylaminoimidazole-succinocarboxamide synthase

phosphoribosylaminoimidazole-succinocarboxamide synthase
phosphoribosylaminoimidazole-succinocarboxamide synthase
phosphoribosylaminoimidazole-succinocarboxamide synthase
serine/threonine phosphatase
serine/threonine phosphatase
hypothetical protein LA_3522
hypothetical protein LA_3522
hypothetical protein LA_3522
hypothetical protein LA_3522
ABC transporter ATP-binding protein
hypothetical protein LA_3524
hypothetical protein LA_3524
hypothetical protein LA_3532
hypothetical protein LA_3532
hypothetical protein LA_3532
hypothetical protein LA_3532
hypothetical protein LA_3532
hypothetical protein LA_3532
hypothetical protein LA_3533
hypothetical protein LA_3533
hypothetical protein LA_3535
hypothetical protein LA_3535
hypothetical protein LA_3535
proton antiporter efflux pump
proton antiporter efflux pump
ribosomal protein serine acetyltransferase
ribosomal protein serine acetyltransferase
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
hypothetical protein LA_3571
hypothetical protein LA_3571
hypothetical protein LA_3571
flagellar basal body-associated protein FliL
flagellar basal body-associated protein FliL
flagellar motor protein MotB
glycosyltransferase
glycosyltransferase
dioxygenase-like protein
dioxygenase-like protein
gamma-glutamyl carboxylase-like protein
ATP-dependent Lon protease
ATP-dependent Lon protease
ATP-dependent Lon protease
ATP-dependent Lon protease
ATP-dependent Lon protease
ATP-dependent Lon protease

ATP-dependent Lon protease
ATP-dependent Lon protease
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
pyridoxal phosphate-dependent aminotransferase
hypothetical protein LA_3606
hypothetical protein LA_3606
hypothetical protein LA_3606
hypothetical protein LA_3606
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
MaoC-like acyl dehydratase
2-dehydropantoate 2-reductase
2-dehydropantoate 2-reductase
glycosyltransferase
DNA polymerase I
DNA polymerase I
DNA polymerase I
DNA polymerase I
DNA polymerase I
DNA polymerase I
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
anthranilate synthase component I
anthranilate synthase component I
anthranilate synthase component I
anthranilate synthase component I
anthranilate synthase component I
anthranilate synthase component I
receiver component of a two-component response regulator
FOG:HEAT repeat protein
FOG:HEAT repeat protein
cyclic amidohydrolase
cyclic amidohydrolase

homoserine dehydrogenase
homoserine dehydrogenase
homoserine dehydrogenase
homoserine dehydrogenase
homoserine dehydrogenase
homoserine dehydrogenase
homoserine dehydrogenase
anti-Sigma factor antagonist
 enoyl-CoA hydratase
 enoyl-CoA hydratase
 enoyl-CoA hydratase
 enoyl-CoA hydratase
 enoyl-CoA hydratase

two-component response regulator
two-component response regulator
two-component response regulator
two-component response regulator
two-component response regulator
two-component response regulator
two-component response regulator
 hydrolase

 hydrolase/acyltransferase
 hydrolase/acyltransferase
 hydrolase/acyltransferase
 hydrolase/acyltransferase
 hydrolase/acyltransferase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 acyl-CoA dehydrogenase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase
 ABC transporter ATPase

membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
membrane carboxypeptidase/penicillin-binding protein
 heat shock protein GrpE
 heat shock protein GrpE
 heat shock protein GrpE
 heat shock protein GrpE
 chaperone protein DnaK

[illegible]

hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
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hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3748
hypothetical protein LA_3749
hypothetical protein LA_3749
hypothetical protein LA_3749
hypothetical protein LA_3749
hypothetical protein LA_3751
hypothetical protein LA_3752
hypothetical protein LA_3752
hypothetical protein LA_3752

signal peptidase I
signal peptidase I
signal peptidase I
signal peptidase I

RNA-binding protein
RNA-binding protein

[illegible]

peptidyl-tRNA hydrolase
peptidyl-tRNA hydrolase
hypothetical protein LA_3769
hypothetical protein LA_3769
glyoxalase/bleomycin resistance protein/dioxygenase
glyoxalase/bleomycin resistance protein/dioxygenase
adenosine deaminase
adenosine deaminase
adenosine deaminase
adenosine deaminase
adenosine deaminase
adenosine deaminase
adenosine deaminase
adenosine deaminase
hydrolase
hydrolase
glycosyltransferase
glycosyltransferase
glycosyltransferase
hypothetical protein LA_3796
30S ribosomal protein S20
phosphomannomutase
phosphomannomutase
phosphomannomutase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
glucosamine 6-phosphate synthetase
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
acetyl-CoA carboxylase carboxyltransferase component
nitrogen regulatory protein P-II
nitrogen regulatory protein P-II
nitrogen regulatory protein P-II
hypothetical protein LA_3816
hypothetical protein LA_3816
hypothetical protein LA_3816
hypothetical protein LA_3818

hypothetical protein LA_3818

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

ATP-dependent Zn protease

peptidyl-tRNA hydrolase

peptidyl-tRNA hydrolase

peptidyl-tRNA hydrolase

peptidyl-tRNA hydrolase

peptidyl-tRNA hydrolase

50S ribosomal protein L25

50S ribosomal protein L25

50S ribosomal protein L25

50S ribosomal protein L25

50S ribosomal protein L25

50S ribosomal protein L25

phosphoribosyl pyrophosphate synthetase

phosphoribosyl pyrophosphate synthetase

phosphoribosyl pyrophosphate synthetase

phosphoribosyl pyrophosphate synthetase

phosphoribosyl pyrophosphate synthetase

phosphoribosyl pyrophosphate synthetase

UDP-N-acetylglucosamine diphosphorylase

UDP-N-acetylglucosamine diphosphorylase

UDP-N-acetylglucosamine diphosphorylase

UDP-N-acetylglucosamine diphosphorylase

UDP-N-acetylglucosamine diphosphorylase

UDP-N-acetylglucosamine diphosphorylase

UDP-N-acetylglucosamine diphosphorylase

hypothetical protein LA_3833

hypothetical protein LA_3833

hypothetical protein LA_3838

phospholipid binding protein

phospholipid binding protein

phospholipid binding protein

phospholipid binding protein

cation/multidrug efflux pump

cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
hypothetical protein LA_3849
hypothetical protein LA_3861
hypothetical protein LA_3861

response regulator containing a signal receiver domain and a DNA-binding domain
response regulator containing a signal receiver domain and a DNA-binding domain
response regulator containing a signal receiver domain and a DNA-binding domain
response regulator containing a signal receiver domain and a DNA-binding domain
response regulator containing a signal receiver domain and a DNA-binding domain

hypothetical protein LA_3870
hypothetical protein LA_3870
hypothetical protein LA_3870
hypothetical protein LA_3870
hypothetical protein LA_3870
hypothetical protein LA_3870
hypothetical protein LA_3870
hypothetical protein LA_3870
hypothetical protein LA_3870
periplasmic serine protease
periplasmic serine protease
periplasmic serine protease
periplasmic serine protease
acid phosphatase
acid phosphatase
acid phosphatase
glucose-6-phosphate isomerase
glucose-6-phosphate isomerase
glucose-6-phosphate isomerase
glucose-6-phosphate isomerase

glucose-6-phosphate isomerase
glucose-6-phosphate isomerase
nucleoside-diphosphate-sugar pyrophosphorylase
nucleoside-diphosphate-sugar pyrophosphorylase
Ser/Thr protein kinase-like phosphotransferase
Ser/Thr protein kinase-like phosphotransferase
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
acyltransferase
metallo-beta-lactamase superfamily hydrolase
metallo-beta-lactamase superfamily hydrolase
metallo-beta-lactamase superfamily hydrolase
metallo-beta-lactamase superfamily hydrolase
hypothetical protein LA_3910
hypothetical protein LA_3910
hypothetical protein LA_3912
hypothetical protein LA_3912
hypothetical protein LA_3912
hypothetical protein LA_3912
hypothetical protein LA_3912
hypothetical protein LA_3912
hypothetical protein LA_3912
hypothetical protein LA_3912
hypothetical protein LA_3913
hypothetical protein LA_3913
hypothetical protein LA_3917
hypothetical protein LA_3917
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
methionyl-tRNA synthetase
hypothetical protein LA_3922
hypothetical protein LA_3922
hypothetical protein LA_3922
NAD(P)H steroid dehydrogenase
NAD(P)H steroid dehydrogenase
NAD(P)H steroid dehydrogenase
NAD(P)H steroid dehydrogenase
response regulator with GGDEF domain
response regulator with GGDEF domain
hypothetical protein LA_3934
flavoprotein

flavoprotein
 flavoprotein
 hemolysin-like protein
 hemolysin-like protein
 hypothetical protein LA_3938
 hypothetical protein LA_3938
 hypothetical protein LA_3938
 hypothetical protein LA_3938
 hypothetical protein LA_3938
 hypothetical protein LA_3938
 hypothetical protein LA_3938
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 ATP-dependent DNA helicase RecG
 D-alanyl-D-alanine carboxypeptidase
 D-alanyl-D-alanine carboxypeptidase
 D-alanyl-D-alanine carboxypeptidase
 D-alanyl-D-alanine carboxypeptidase
 UDP-glucose 4-epimerase
 UDP-glucose 4-epimerase
 UDP-glucose 4-epimerase
 UDP-glucose 4-epimerase
 UDP-N-acetylglucosamine acyltransferase
 UDP-N-acetylglucosamine acyltransferase
 UDP-N-acetylglucosamine acyltransferase
 UDP-N-acetylglucosamine acyltransferase
 hypothetical protein LA_3950
 hypothetical protein LA_3950
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase
 3-methyl-2-oxobutanoate hydroxymethyltransferase
 3-methyl-2-oxobutanoate hydroxymethyltransferase
 3-methyl-2-oxobutanoate hydroxymethyltransferase
 3-methyl-2-oxobutanoate hydroxymethyltransferase
 2-amino-4-hydroxy-6-hydroxymethyldihydropteridine pyrophosphokinase
 DNA replication protein DnaC
 GDP-mannose 4,6-dehydratase

GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
GDP-mannose 4,6-dehydratase
adenosine/AMP deaminase
adenosine/AMP deaminase
adenosine/AMP deaminase
potassium uptake system, NAD-binding component
potassium uptake system, NAD-binding component
potassium uptake system, NAD-binding component
NTP pyrophosphohydrolase
NTP pyrophosphohydrolase
NTP pyrophosphohydrolase
lysine methyltransferase
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
hypothetical protein LA_3982
GTPase
cholesterol oxidase
cholesterol oxidase
cholesterol oxidase
cholesterol oxidase
cholesterol oxidase
cholesterol oxidase
cholesterol oxidase
cholesterol oxidase
choline dehydrogenase
choline dehydrogenase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
adenylate/guanylate cyclase
hypothetical protein LA_4027

phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta
phenylalanyl-tRNA synthetase subunit beta

inorganic pyrophosphatase

inorganic pyrophosphatase

inorganic pyrophosphatase

inorganic pyrophosphatase

hypothetical protein LA_4046

short-chain dehydrogenase

short-chain dehydrogenase

lysine decarboxylase-like protein

lysine decarboxylase-like protein

two-component response regulator

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

isocitrate dehydrogenase

hypothetical protein LA_4068

UDP-N-acetylglucosamine 1-carboxyvinyltransferase
 UDP-N-acetylglucosamine 1-carboxyvinyltransferase
 UDP-N-acetylglucosamine 1-carboxyvinyltransferase
 UDP-N-acetylglucosamine 1-carboxyvinyltransferase
 UDP-N-acetylglucosamine 1-carboxyvinyltransferase
 UDP-N-acetylglucosamine 1-carboxyvinyltransferase
 Zn-dependent alcohol dehydrogenase
 Zn-dependent alcohol dehydrogenase
 Zn-dependent alcohol dehydrogenase
 Zn-dependent alcohol dehydrogenase
 Zn-dependent alcohol dehydrogenase
 Zn-dependent alcohol dehydrogenase
 ferredoxin
 ferredoxin
 hypothetical protein LA_4087
 MutT/nudix family protein
 MutT/nudix family protein
 hypothetical protein LA_4097
 hypothetical protein LA_4100
 hypothetical protein LA_4100
 response regulator
 response regulator
 serine phosphatase RsbU
 hypothetical protein LA_4109
 hypothetical protein LA_4109
 hypothetical protein LA_4109
 hypothetical protein LA_4109
 hypothetical protein LA_4109
 hypothetical protein LA_4109
 hypothetical protein LA_4109
 hypothetical protein LA_4109
 acetyl-CoA acetyltransferase
 acetyl-CoA acetyltransferase
 MaoC-like acyl dehydratase
 acyl-CoA dehydrogenase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 NAD dependent DNA ligase
 peptidase-like protein
 peptidase-like protein
 peptidase-like protein
 peptidase-like protein

peptidase-like protein
peptidase-like protein
NADPH-dependent FMN reductase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
3-hydroxyacyl-CoA dehydrogenase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase
phenylalanine-tRNA synthetase subunit alpha
phenylalanine-tRNA synthetase subunit alpha
phenylalanine-tRNA synthetase subunit alpha
UDP-N-acetylmuramate--L-alanine ligase
UDP-N-acetylmuramate--L-alanine ligase
UDP-N-acetylmuramate--L-alanine ligase
hypothetical protein LA_4153
hypothetical protein LA_4153
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
ABC transporter ATP-binding protein
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta

fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
fatty acid synthase subunit beta
hypothetical protein LA_4160
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
argininosuccinate synthase
pantetheine-phosphate adenylyltransferase
pantetheine-phosphate adenylyltransferase
pantetheine-phosphate adenylyltransferase
nucleoside-diphosphate kinase
nucleoside-diphosphate kinase
nucleoside-diphosphate kinase
nucleoside-diphosphate kinase
nucleoside-diphosphate kinase
nucleoside-diphosphate kinase
nucleoside-diphosphate kinase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
isocitrate/isopropylmalate dehydrogenase
GMC oxidoreductase
GMC oxidoreductase

hypothetical protein LA_4182

bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase
bifunctional glutamate-tRNA ligase/glutamine-tRNA ligase

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit A

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

DNA gyrase subunit B

L-amino acid oxidase

L-amino acid oxidase

L-amino acid oxidase

L-amino acid oxidase

L-amino acid oxidase

hypothetical protein LA_4208

hypothetical protein LA_4208

siroheme synthase

sulfate adenylyltransferase subunit 1

sulfate adenylyltransferase subunit 1
sulfate adenylyltransferase subunit 1
sulfate adenylyltransferase subunit 1
sulfate adenylyltransferase subunit 1
sulfate adenylyltransferase subunit 2
sulfate adenylyltransferase subunit 2
sulfate adenylyltransferase subunit 2
sulfate adenylyltransferase subunit 2
sulfate adenylyltransferase subunit 2
sulfate adenylyltransferase subunit 2
phosphoadenosine phosphosulfate reductase
DNA mismatch repair protein ATPase component
polysaccharide deacetylase
polysaccharide deacetylase
polysaccharide deacetylase
polysaccharide deacetylase
polysaccharide deacetylase
polysaccharide deacetylase
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
purine nucleoside phosphorylase
purine nucleoside phosphorylase
purine nucleoside phosphorylase
purine nucleoside phosphorylase
purine nucleoside phosphorylase
purine nucleoside phosphorylase
purine nucleoside phosphorylase
purine nucleoside phosphorylase
methyl-accepting chemotaxis protein
methyl-accepting chemotaxis protein
acetyl-CoA synthetase
acetyl-CoA synthetase
acetyl-CoA synthetase
acetyl-CoA synthetase
acetyl-CoA synthetase
acetyl-CoA synthetase
acetyl-CoA synthetase
GTP cyclohydrolase I
GTP cyclohydrolase I
GTP cyclohydrolase I
mannosyltransferase
mannosyltransferase
hypothetical protein LA_4258
phosphoribosylglycinamide formyltransferase 2
phosphoribosylglycinamide formyltransferase 2
phosphoribosylglycinamide formyltransferase 2
phosphoribosylglycinamide formyltransferase 2

phosphoribosylglycinamide formyltransferase 2

hypothetical protein LA_4272

hypothetical protein LA_4272

hypothetical protein LA_4272

hypothetical protein LA_4272

hypothetical protein LA_4272

hypothetical protein LA_4272

hypothetical protein LA_4272

formate hydrogenase subunit C

metal (Ni/Fe) hydrogenase large subunit

metal (Ni/Fe) hydrogenase large subunit

metal (Ni/Fe) hydrogenase large subunit

metal (Ni/Fe) hydrogenase large subunit

metal (Ni/Fe) hydrogenase large subunit

metal (Ni/Fe) hydrogenase large subunit

metal (Ni/Fe) hydrogenase large subunit

metal (Ni/Fe) hydrogenase small subunit

metal (Ni/Fe) hydrogenase small subunit

metal (Ni/Fe) hydrogenase small subunit

ABC transporter ATP-binding protein

hypothetical protein LA_4291

hypothetical protein LA_4293

hypothetical protein LA_4293

hypothetical protein LA_4293

hypoxanthine phosphoribosyltransferase

hypoxanthine phosphoribosyltransferase

sodium/hydrogen antiporter

glutathione peroxidase

glutathione peroxidase

Hsp31/PfpI family protein

Hsp31/PfpI family protein

Hsp31/PfpI family protein

flagellar assembly protein FlhW

flagellar hook-associated protein FlgK

hypothetical protein LA_4315

hypothetical protein LA_4315

hypothetical protein LA_4315

hypothetical protein LA_4332

hypothetical protein LA_4335

hypothetical protein LA_4335

peptide ABC transporter periplasmic

seryl-tRNA synthetase

seryl-tRNA synthetase

seryl-tRNA synthetase

seryl-tRNA synthetase

seryl-tRNA synthetase

Mg-dependent DNase

metalloendopeptidase

metalloendopeptidase
metalloendopeptidase
ParB-like protein
ParB-like protein
ParB-like protein
ParB-like protein
ParB-like protein
ParB-like protein
glucose-inhibited division protein B
glucose-inhibited division protein B
glucose-inhibited division protein B
metallopeptidase
metallopeptidase
metallopeptidase
metallopeptidase
metallopeptidase
hypothetical protein LA_4355
hypothetical protein LA_4355
hypothetical protein LA_4355
hypothetical protein LA_4355
tRNA uridine 5-carboxymethylaminomethyl modification enzyme GidA
tRNA uridine 5-carboxymethylaminomethyl modification enzyme GidA
DNA polymerase III gamma and tau subunits
DNA polymerase III gamma and tau subunits
DNA polymerase III gamma and tau subunits
5,10 methylene tetrahydrofolate reductase
5,10 methylene tetrahydrofolate reductase
hypothetical protein LIC20005
hypothetical protein LIC20005
hypothetical protein LIC20005
porphobilinogen deaminase
porphobilinogen deaminase
delta-aminolevulinic acid dehydratase
delta-aminolevulinic acid dehydratase
delta-aminolevulinic acid dehydratase
delta-aminolevulinic acid dehydratase
delta-aminolevulinic acid dehydratase
glutamate-1-semialdehyde aminotransferase
glutamate-1-semialdehyde aminotransferase
glutamate-1-semialdehyde aminotransferase
glutamate-1-semialdehyde aminotransferase
glutamate-1-semialdehyde aminotransferase
glutamate-1-semialdehyde aminotransferase
glutamate-1-semialdehyde aminotransferase
response regulator
uroporphyrinogen decarboxylase
coproporphyrinogen III oxidase
coproporphyrinogen III oxidase

azoreductase
azoreductase
azoreductase

short-chain dehydrogenase

NADH dehydrogenase

NADH dehydrogenase

Recombinant protein LIC20

hypothetical protein LIC20032

hypothetical protein LIC20034

hypothetical protein LIC20035

hypothetical protein LIC20035

hypothetical protein LIC20035

hypothetical protein LIC20035

hypothetical protein LIC20036

methanol dehydrogenase regulator

methanol dehydrogenase regulator

methanol dehydrogenase regulator

methanol dehydrogenase regulator

methanol dehydrogenase regulator

heat shock protein 90

heat shock protein 90

heat shock protein 90

heat shock protein 90

heat shock protein 90

heat shock protein 90

hypothetical protein LIC20045

anti-sigma factor antagonist

anti-sigma factor antagonist

hypothetical protein LIC20049

fatty acid desaturase

LAO/AO transport system kinase

methyilmalonyl-CoA mutase

methoxymalonyl-CoA mutase

methyilmalonyl-CoA mutase

methyldmalonyl-CoA mutase

methyalmalonyl-CoA mutase

methylnmalonyl-CoA mutase

methyilmalonyl-CoA mutase

methyalmalonyl-CoA mutase
thiol-disulfide interchange like protein
phosphoribosyl-ATP pyrophosphatase
phosphoribosyl-ATP pyrophosphatase
phosphoribosyl-ATP pyrophosphatase
3-oxoacyl-(acyl-carrier protein) reductase
3-oxoacyl-(acyl-carrier protein) reductase
3-oxoacyl-(acyl-carrier protein) reductase
acyl carrier protein
acyl carrier protein
acyl carrier protein
hypothetical protein LIC20078
hypothetical protein LIC20078
hypothetical protein LIC20078
haloacid dehalogenase-like protein
4-hydroxybenzoyl-CoA thioesterase
4-hydroxybenzoyl-CoA thioesterase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
S-adenosyl-L-homocysteine hydrolase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
B12-dependent methionine synthase
diphosphate--fructose-6-phosphate 1-phosphotransferase
diphosphate--fructose-6-phosphate 1-phosphotransferase
sigma factor regulatory protein
bacterioferritin comigratory protein

bacterioferritin comigratory protein
 adenylate/guanylate cyclase
 hypothetical protein LIC20096
 hypothetical protein LIC20096
 hypothetical protein LIC20096
 short-chain dehydrogenase
 short-chain dehydrogenase
 shikimate kinase
 hypothetical protein LIC20100
 pheromone shutdown protein
 pheromone shutdown protein
 pheromone shutdown protein
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 LipL45 homologue
 RNA polymerase ECF-type sigma factor
 hypothetical protein LIC20136
 capsular polysaccharide biosynthesis protein
 capsular polysaccharide biosynthesis protein
 hypothetical protein LIC20139
 putative permease
 heat shock protein HtpX
 heat shock protein HtpX
 adenine phosphoribosyltransferase
 adenine phosphoribosyltransferase
 adenine phosphoribosyltransferase
 HtrA1
 HtrA1
 HtrA1-like protein
 HtrA1-like protein
 hypothetical protein LIC20146
 hypothetical protein LIC20153
 ATP-dependent protease
 hypothetical protein LIC20160
 mannosyltransferase
 hypothetical protein LIC20162
 hypothetical protein LIC20162
 hypothetical protein LIC20165
 hypothetical protein LIC20165
 hypothetical protein LIC20167
 hypothetical protein LIC20167
 MotA/TolQ/ExbB proton channel family protein
 lipoprotein
 dnaK suppressor
 dnaK suppressor
 dnaK suppressor

[illegible]

methyalmalonyl-CoA mutase
methyalmalonyl-CoA mutase
methyalmalonyl-CoA mutase
methyalmalonyl-CoA mutase
methyalmalonyl-CoA mutase
methyalmalonyl-CoA mutase
hypothetical protein LIC20214
hypothetical protein LIC20214
ExbB
ExbB
ExbB
hypothetical protein LIC20223
3-oxoacyl-[acyl-carrier protein] reductase
3-oxoacyl-[acyl-carrier protein] reductase
3-oxoacyl-[acyl-carrier protein] reductase
acireductone dioxygenase enzyme ARD and ARD'
acireductone dioxygenase enzyme ARD and ARD'
acireductone dioxygenase enzyme ARD and ARD'
acireductone dioxygenase enzyme ARD and ARD'
acireductone dioxygenase enzyme ARD and ARD'
phosphate ABC transporter periplasmic phosphate-binding protein
S-adenosylmethionine decarboxylase like protein
S-adenosylmethionine decarboxylase like protein
S-adenosylmethionine decarboxylase like protein
S-adenosylmethionine decarboxylase proenzyme
hypothetical protein LIC20240
alanine racemase
alanine racemase
alanine racemase
alanine racemase
alanine racemase
alanine racemase
alanine racemase
alanine racemase
putative acyltransferase
putative acyltransferase
putative acyltransferase
putative acyltransferase
hypothetical protein LIC20243
hypothetical protein LIC20243
hypothetical protein LIC20243
hypothetical protein LIC20243
hypothetical protein LIC20243
hypothetical protein LIC20244
histidine kinase sensor protein
histidine kinase sensor protein
histidine kinase sensor protein
histidine kinase sensor protein

aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
aconitate hydratase
peptidoglycan-associated cytoplasmic membrane protein
response regulator
response regulator
response regulator
response regulator
response regulator
response regulator
pterin-4-alpha-carbinolamine dehydratase
hypothetical protein LIC20257
hypothetical protein LIC20262
pyruvate kinase
pyruvate kinase
pyruvate kinase
pyruvate kinase
pyruvate kinase
hypothetical protein LIC20265
aspartate-semialdehyde dehydrogenase
aspartate-semialdehyde dehydrogenase
aspartate-semialdehyde dehydrogenase
aspartate-semialdehyde dehydrogenase
aspartate-semialdehyde dehydrogenase
aspartate-semialdehyde dehydrogenase
hypothetical protein LIC20272
hypothetical protein LIC20272
hypothetical protein LIC20272
hypothetical protein LIC20272
hypothetical protein LIC20272
putative transcriptional regulator
hypothetical protein LIC20274
hypothetical protein LIC20274
hypothetical protein LIC20274
hypothetical protein LIC20275

hypothetical protein LIC20275
hypothetical protein LIC20275
long-chain-fatty-acid CoA ligase
long-chain-fatty-acid CoA ligase
hypothetical protein LIC10115
phosphomethylpyrimidine kinase protein
phosphomethylpyrimidine kinase protein
HD-GYP hydrolase domain-containing protein
phosphoenolpyruvate carboxykinase
hypothetical protein LIC10291
hypothetical protein LIC10314
hypothetical protein LIC10314
hypothetical protein LIC10337
hemolysin B
hypothetical protein LIC10348
phosphoribosyl pyrophosphate synthetase
phosphoribosyl pyrophosphate synthetase
hypothetical protein LIC10521
lipase
enoyl-CoA hydratase
anthranilate synthase component II
acyl-CoA dehydrogenase
DNA polymerase I
ammonium transporter
DNA-binding stress protein
hypothetical protein LIC10618
anti-sigma factor antagonist
hypothetical protein LIC10640
hypothetical protein LIC10643
hypothetical protein LIC10692
hypothetical protein LIC10712
polyphosphate kinase
polyphosphate kinase
glycerol uptake facilitator protein
30S ribosomal protein S7
hypothetical protein LIC10770
enoyl-CoA hydratase
hypothetical protein LIC10824
hypothetical protein LIC10828
hypothetical protein LIC10828
transketolase alpha subunit protein
monooxygenase
outer membrane protein
FUR family transcriptional regulator
hypothetical protein LIC11017
hypothetical protein LIC11036
periplasmic trypsin-like serine protease
hypothetical protein LIC11051

NH(3)-dependent NAD(+) synthetase
 uridine 5-monophosphate synthase
 HtrA2
 hypothetical protein LIC11137
 hypothetical protein LIC11177
 hypothetical protein LIC11183
 methyl-accepting chemotaxis transducer transmembrane protein
 peroxiredoxin
 F0F1 ATP synthase subunit gamma
 F0F1 ATP synthase subunit epsilon
 F0F1 ATP synthase subunit epsilon
 periplasmic sulfate-binding protein
 phosphoglycolate phosphatase
 aminopeptidase P
 N-acyl-L-amino acid amidohydrolase
 chaperonin GroEL
 hypothetical protein LIC11340
 transketolase
 hypothetical protein LIC11359
 hypothetical protein LIC11359
 hypothetical protein LIC11369
 hypothetical protein LIC11369
 hypothetical protein LIC11381
 hypothetical protein LIC11390
 hypothetical protein LIC11408
 glycine rich RNA-binding protein
 histidine kinase sensor protein
 adenylate/guanylate cyclase
 hypothetical protein LIC11468
 thioredoxin reductase
 acetyl-CoA carboxylase alpha subunit
 biotin carboxylase subunit of acetyl CoA carboxylase
 biotin carboxylase subunit of acetyl CoA carboxylase
 chemotaxis response regulator
 ADP-heptose synthase
 HPr kinase/phosphorylase
 LipL45
 lipoyl synthase
 hypothetical protein LIC11650
 hypothetical protein LIC11653
 endonuclease
 2,4-dienoyl-coa reductase
 N-acetyl-gamma-glutamyl-phosphate reductase
 N-acetyl-gamma-glutamyl-phosphate reductase
 3-isopropylmalate dehydrogenase
 response regulator
 aspartate aminotransferase
 dihydrolipoamide dehydrogenase

[illegible]

aminotransferase
aminotransferase
aminotransferase
aminotransferase
aminotransferase
aminotransferase
UDP-glucose 4-epimerase
heavy metal efflux pump
mannose-1-phosphate guanylyltransferase
hypothetical protein LIC12263
phosphoribosylaminoimidazole carboxylase catalytic subunit protein
beta-ketoacyl synthase
hypothetical protein LIC12332
hypothetical protein LIC12341
capsule biosynthesis protein
capsule biosynthesis protein
isoleucyl-tRNA synthetase
phosphoribosylformylglycinamide synthetase
putative glutamine synthetase protein
hypothetical protein LIC12408
hypothetical protein LIC12413
phosphoglycerol transferase
translation initiation factor IF-3
dihydrolipoamide succinyltransferase
hypothetical protein LIC12548
hypothetical protein LIC12557
hypothetical protein LIC12568
hypothetical protein LIC12639
hypothetical protein LIC12645
hypothetical protein LIC12649
hypothetical protein LIC12652
exodeoxyribonuclease v alpha chain
glutamate synthase (NADPH) alpha chain precursor
glutamate synthase (NADPH) alpha chain precursor
glutamate synthase (NADPH) alpha chain precursor
glutamate synthase (NADPH) alpha chain precursor
metalloprotease
metalloprotease
polynucleotide phosphorylase/polyadenylase
polynucleotide phosphorylase/polyadenylase
hypothetical protein LIC12731
site-specific modification DNA-methyltransferase
putative nicotinate-nucleotide adenylyltransferase
gamma-glutamyl phosphate reductase
gamma-glutamyl phosphate reductase
anti-sigma factor antagonist
acetyl-CoA acetyltransferase
acetyl-CoA acetyltransferase

citrate synthase
 preprotein translocase subunit SecY
 30S ribosomal protein S8
 50S ribosomal protein L16
 30S ribosomal protein S19
 elongation factor Tu
 cytoplasmic membrane protein
 cytoplasmic membrane protein
 hypothetical protein LIC12923
 nitrogen regulatory IIA protein
 hypothetical protein LIC12970
 hypothetical protein LIC12974
 hypothetical protein LIC12980
 hypothetical protein LIC13022
 acriflavin resistance
 hypothetical protein LIC13081
 hypothetical protein LIC13083
 acyltransferase
 amino-sugar biosynthesis protein
 hypothetical protein LIC13186
 major facilitator superfamily permease
 phenylalanyl-tRNA synthetase beta chain
 phenylalanyl-tRNA synthetase beta chain
 ATP-dependent RNA helicase
 hypothetical protein LIC13245
 putative lipoprotein
 glutamine phosphoribosylpyrophosphate amidotransferase
 hypothetical protein LIC13275
 NAD dependent DNA ligase
 hypothetical protein LIC13293
 hypothetical protein LIC13297
 acetyl-CoA acetyltransferase
 ABC transporter, ATP-binding protein
 fatty acid synthase subunit beta
 isocitrate dehydrogenase
 zinc carboxypeptidase-related protein
 sulfite reductase subunit beta
 FAD-dependent oxidoreductase
 phosphoribosylglycinamide formyltransferase 2
 hydrogenase subunit
 flagellar hook-associated protein FlgK
 transcriptional coactivator
 hypothetical protein LIC13482
 DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
 DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
 DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
 DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
 DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001

DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001
DNA polymerase III >gi|45655586|ref|YP_003395.1| hypothetical protein LIC20001

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

valyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

leucyl-tRNA synthetase

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha

F0F1 ATP synthase subunit alpha
F0F1 ATP synthase subunit alpha
F0F1 ATP synthase subunit alpha
F0F1 ATP synthase subunit alpha
bifunctional GMP synthase/glutamine amidotransferase
bifunctional GMP synthase/glutamine amidotransferase
bifunctional GMP synthase/glutamine amidotransferase
bifunctional GMP synthase/glutamine amidotransferase
bifunctional GMP synthase/glutamine amidotransferase
bifunctional GMP synthase/glutamine amidotransferase
bifunctional GMP synthase/glutamine amidotransferase
bifunctional GMP synthase/glutamine amidotransferase
ATP-dependent protease ClpP
ATP-dependent protease ClpP
ATP-dependent protease ClpP
ATP-dependent protease ClpP
ATP-dependent protease ClpP
ATP-dependent protease ClpP
ATP-dependent protease ClpP
ATP-dependent protease ClpP
30S ribosomal protein S15
30S ribosomal protein S15
30S ribosomal protein S15
30S ribosomal protein S15
valine--pyruvate aminotransferase
valine--pyruvate aminotransferase
valine--pyruvate aminotransferase
valine--pyruvate aminotransferase
valine--pyruvate aminotransferase
valine--pyruvate aminotransferase
S-adenosylmethionine synthetase
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
F0F1 ATP synthase subunit gamma
hypothetical protein LA_0018
hypothetical protein LA_0018
hypothetical protein LA_0018
hypothetical protein LA_0018
hypothetical protein LA_0018
glutaredoxin family protein
TPR-repeat-containing protein
hypothetical protein LA_0070
hypothetical protein LA_0070

[illegible]

hypothetical protein LA_0172
hypothetical protein LA_0172
hypothetical protein LA_0172
hypothetical protein LA_0172
malic enzyme
malic enzyme
malic enzyme
malic enzyme
transcriptional regulator
transcriptional regulator
hypothetical protein LA_0234
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
cytochrome c oxidase subunit II
transcriptional regulator
transcriptional regulator
transcriptional regulator
transcriptional regulator
transcriptional regulator
transcriptional regulator
hypothetical protein LA_0254
DNA polymerase III subunit alpha
DNA polymerase III subunit alpha
DNA polymerase III subunit alpha
RNA polymerase ECF-type sigma factor
RNA polymerase ECF-type sigma factor
hypothetical protein LA_0268
hypothetical protein LA_0268
hypothetical protein LA_0268
hypothetical protein LA_0268
lipoprotein releasing system permease
lipoprotein releasing system permease
lipoprotein releasing system permease
lipoprotein releasing system permease
lipoprotein releasing system permease
lipoprotein releasing system permease
lipoprotein releasing system permease
lipoprotein releasing system permease
exonuclease
exonuclease
exonuclease
Zn-dependent alcohol dehydrogenase

Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
hypothetical protein LA_0323
geranylgeranyl pyrophosphate synthase
geranylgeranyl pyrophosphate synthase
glycerophosphoryl diester phosphodiesterase
glycerophosphoryl diester phosphodiesterase
glycerophosphoryl diester phosphodiesterase
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
glycine cleavage system aminomethyltransferase T
phosphoserine aminotransferase
phosphoserine aminotransferase
phosphoserine aminotransferase
phosphoserine aminotransferase
phosphoserine aminotransferase
phosphoserine aminotransferase
phosphoserine aminotransferase
phosphoserine aminotransferase
hypothetical protein LA_0370
hypothetical protein LA_0370
hypothetical protein LA_0370
hypothetical protein LA_0370
hypothetical protein LA_0370
hypothetical protein LA_0370
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein
TPR-repeat-containing protein

TPR-repeat-containing protein
hypothetical protein LA_0379
hypothetical protein LA_0379
hypothetical protein LA_0379
hypothetical protein LA_0379
hypothetical protein LA_0379
hypothetical protein LA_0379
hypothetical protein LA_0379
hypothetical protein LA_0389
hypothetical protein LA_0389
hypothetical protein LA_0389
hypothetical protein LA_0400
hypothetical protein LA_0400
 phosphoglyceromutase
 phosphoglyceromutase
 phosphoglyceromutase
 phosphoglyceromutase
 phosphoglyceromutase
 phosphoglyceromutase
 phosphoglyceromutase
 phosphoglyceromutase
 phosphoglyceromutase
hypothetical protein LA_0444
hypothetical protein LA_0444
 rhodanese-like protein
 phosphohydrolase
hypothetical protein LA_0478
 transcriptional regulator
 transcriptional regulator
 transcriptional regulator
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump
cation/multidrug efflux pump

TonB-dependent outer membrane receptor
bifunctional permease/carbonic anhydrase
bifunctional permease/carbonic anhydrase
bifunctional permease/carbonic anhydrase
bifunctional permease/carbonic anhydrase

quinolinate synthetase
 quinolinate synthetase
 glycosyltransferase
 oxidoreductase-like protein
 phosphoenolpyruvate-dependent enzyme IIA component of the PTS system
 hypothetical protein LA_0639
 hypothetical protein LA_0644
 hypothetical protein LA_0644
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 anti-sigma factor antagonist
 hypothetical protein LA_0654
 hypothetical protein LA_0654
 hypothetical protein LA_0654
 hypothetical protein LA_0654
 endoflagellar motor protein A
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 hypothetical protein LA_0709
 Holliday junction endodeoxyribonuclease protein
 30S ribosomal protein S17
 30S ribosomal protein S17
 30S ribosomal protein S5
 30S ribosomal protein S5
 30S ribosomal protein S5
 30S ribosomal protein S5
 30S ribosomal protein S5
 30S ribosomal protein S5
 30S ribosomal protein S5
 30S ribosomal protein S5
 30S ribosomal protein S5
 hypothetical protein LA_0777
 rRNA methylase
 rRNA methylase
 hypothetical protein LA_0818
 hypothetical protein LA_0818
 methionine sulfoxide reductase B
 methionine sulfoxide reductase B
 biotin--[acetyl-CoA-carboxylase] ligase
 biotin--[acetyl-CoA-carboxylase] ligase
 biotin--[acetyl-CoA-carboxylase] ligase
 biotin--[acetyl-CoA-carboxylase] ligase
 biotin--[acetyl-CoA-carboxylase] ligase
 dolichyl-phosphate-mannose-protein mannosyltransferase

dolichyl-phosphate-mannose-protein mannosyltransferase
hypothetical protein LA_0858
aldehyde dehydrogenase
aldehyde dehydrogenase
aldehyde dehydrogenase
aldehyde dehydrogenase
aldehyde dehydrogenase
aldehyde dehydrogenase
aldehyde dehydrogenase
NADH dehydrogenase (ubiquinone) chain E
NADH dehydrogenase (ubiquinone) chain E
4-hydroxybenzoate transporter transmembrane protein
4-hydroxybenzoate transporter transmembrane protein
hypothetical protein LA_0941
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
translation initiation factor IF-2
Zn-dependent peptidase
Zn-dependent peptidase
Zn-dependent peptidase
hypothetical protein LA_0958
hypothetical protein LA_0958
hypothetical protein LA_0958
hypothetical protein LA_0960
hypothetical protein LA_0960
exodeoxyribonuclease V subunit alpha
drug proton antiporter
hypothetical protein LA_1090

lipid-a-disaccharide synthase
 cytoplasmic membrane protein
 cytoplasmic membrane protein
 cytoplasmic membrane protein
 cytoplasmic membrane protein
 hypothetical protein LA_1122
 CDP-diacylglycerol--glycerol-3-phosphate 3- phosphatidyltransferase
 hypothetical protein LA_1141a
 hypothetical protein LA_1141a
 hypothetical protein LA_1141a
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecF
 preprotein translocase subunit SecF
 sulfate ABC transporter permease
 sulfate ABC transporter permease
 ABC transporter ATP-binding protein
 ABC transporter ATP-binding protein
 ABC transporter ATP-binding protein
 hypothetical protein LA_1196
 hypothetical protein LA_1196
 hypothetical protein LA_1200
 intramembrane serine protease
 carbamoyl phosphate synthase small subunit
 carbamoyl phosphate synthase small subunit
 carbamoyl phosphate synthase small subunit
 carbamoyl phosphate synthase small subunit
 carbamoyl phosphate synthase small subunit
 bifunctional prephenate dehydratase/chorismate mutase
 bifunctional prephenate dehydratase/chorismate mutase
 bifunctional prephenate dehydratase/chorismate mutase
 bifunctional prephenate dehydratase/chorismate mutase
 bifunctional prephenate dehydratase/chorismate mutase
 bifunctional prephenate dehydratase/chorismate mutase
 ATP phosphoribosyltransferase
 ATP phosphoribosyltransferase

ATP phosphoribosyltransferase
ATP phosphoribosyltransferase
transcriptional regulator
transcriptional regulator
transcriptional regulator
transcriptional regulator
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
hypothetical protein LA_1295
chromosome segregation protein
hypothetical protein LA_1312a
anti-sigma factor antagonist
hypothetical protein LA_1328
hypothetical protein LA_1328
hypothetical protein LA_1328
hypothetical protein LA_1328
hypothetical protein LA_1328
hypothetical protein LA_1328
hypothetical protein LA_1328
hypothetical protein LA_1328
ankyrin repeat-containing protein
two-component system signal receiver
two-component system signal receiver
two-component system signal receiver
transcriptional regulator
transcriptional regulator
hypothetical protein LA_1366
pirin-like protein
pirin-like protein
pirin-like protein
hypothetical protein LA_1389
hypothetical protein LA_1389
hypothetical protein LA_1396
hypothetical protein LA_1396
hypothetical protein LA_1396
hypothetical protein LA_1412
hypothetical protein LA_1412
hypothetical protein LA_1412
hypothetical protein LA_1412
hypothetical protein LA_1412

[illegible]

sodium/hydrogen antiporter
sodium/hydrogen antiporter
sodium/hydrogen antiporter
ADP-heptose synthetase
ADP-heptose synthetase
ADP-heptose synthetase
hypothetical protein LA_1586
hypothetical protein LA_1586
hypothetical protein LA_1586
hypothetical protein LA_1586
hypothetical protein LA_1586
hypothetical protein LA_1620
dTDP-4-dehydrorhamnose epimerase
dTDP-4-dehydrorhamnose epimerase
dTDP-4-dehydrorhamnose epimerase
dTDP-4-dehydrorhamnose epimerase
hypothetical protein LA_1639
hypothetical protein LA_1639
dTDP-D-glucose 4,6-dehydratase
dTDP-D-glucose 4,6-dehydratase
dTDP-D-glucose 4,6-dehydratase
dTDP-D-glucose 4,6-dehydratase
hypothetical protein LA_1686
arginyl-tRNA synthetase
arginyl-tRNA synthetase
arginyl-tRNA synthetase
arginyl-tRNA synthetase
arginyl-tRNA synthetase
arginyl-tRNA synthetase
signal peptidase I
signal peptidase I
signal peptidase I
signal peptidase I
carbonic anhydrase/acetyltransferase
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
histidine kinase/response regulator hybrid protein
hypothetical protein LA_1827
hypothetical protein LA_1827
catalase
catalase
transcriptional regulator
hypothetical protein LA_1950
hypothetical protein LA_1950
hypothetical protein LA_1958
hypothetical protein LA_1958
hypothetical protein LA_1958
preprotein translocase subunit SecA

preprotein translocase subunit SecA
preprotein translocase subunit SecA
preprotein translocase subunit SecA
preprotein translocase subunit SecA
preprotein translocase subunit SecA
preprotein translocase subunit SecA
preprotein translocase subunit SecA
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preprotein translocase subunit SecA
preprotein translocase subunit SecA
preprotein translocase subunit SecA

hypothetical protein LA_1965

cation efflux system protein

cation efflux system protein

cation efflux system protein

cation efflux system protein

cation efflux system protein

cation efflux system protein

cation efflux system protein

hypothetical protein LA_1968

hypothetical protein LA_1968

hypothetical protein LA_1968

hypothetical protein LA_1968

hypothetical protein LA_1999

hypothetical protein LA_1999

hypothetical protein LA_1999

hypothetical protein LA_1999

hypothetical protein LA_1999

hypothetical protein LA_2004a

hypothetical protein LA_2025

hypothetical protein LA_2025

hypothetical protein LA_2025

hypothetical protein LA_2025

hypothetical protein LA_2025

hypothetical protein LA_2025

hypothetical protein LA_2025

hypothetical protein LA_2025

hypothetical protein LA_2026

hypothetical protein LA_2030

hypothetical protein LA_2030

hypothetical protein LA_2031

hypothetical protein LA_2031

hydrolase

hydrolase

hydrolase

HIT family hydrolase

HIT family hydrolase

HIT family hydrolase

UDP-N-acetylmuramoylalanyl-D-glutamate--2,6- diaminopimelate ligase

UDP-N-acetylmuramoylalanyl-D-glutamate--2,6- diaminopimelate ligase

UDP-N-acetylmuramoylalanyl-D-glutamate--2,6- diaminopimelate ligase

UDP-N-acetylmuramoylalanyl-D-glutamate--2,6- diaminopimelate ligase

UDP-N-acetylmuramate--L-alanine ligase

UDP-N-acetylmuramate--L-alanine ligase

UDP-N-acetylmuramate--L-alanine ligase

UDP-N-acetylmuramate--L-alanine ligase

hypothetical protein LA_2080

hypothetical protein LA_2083

hypothetical protein LA_2083

hypothetical protein LA_2083

7-cyano-7-deazaguanine reductase

7-cyano-7-deazaguanine reductase

7-cyano-7-deazaguanine reductase

FHA domain-containing protein

ATP-dependent protease ClpP

ATP-dependent protease ClpP

gamma-glutamylcysteine synthetase

gamma-glutamylcysteine synthetase

gamma-glutamylcysteine synthetase

gamma-glutamylcysteine synthetase

biotin synthase

SGNH-hydrolase

SGNH-hydrolase

SGNH-hydrolase

endonuclease III

endonuclease III

endonuclease III

endonuclease III

exopolysaccharide production protein

hypothetical protein LA_2174

hypothetical protein LA_2174

hypothetical protein LA_2174

hypothetical protein LA_2174

hypothetical protein LA_2174

hypothetical protein LA_2174

hypothetical protein LA_2174

alpha-beta hydrolase family esterase

[illegible]

UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase
UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase
UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase
UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase
UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
nucleoside-diphosphate-sugar epimerase
glucose/sorbose dehydrogenase
glucose/sorbose dehydrogenase
glucose/sorbose dehydrogenase
glucose/sorbose dehydrogenase
hypothetical protein LA_2353
hypothetical protein LA_2353
hypothetical protein LA_2353
hypothetical protein LA_2353
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
ribonucleotide reductase subunit alpha
type II secretory pathway component protein D
type II secretory pathway component protein D
type II secretory pathway component protein D
type II secretory pathway component protein D
type II secretory pathway component protein D
type II secretory pathway component protein D
type II secretory pathway component protein D
hypothetical protein LA_2378
ribonuclease H II
30S ribosomal protein S16

30S ribosomal protein S16
 methionyl-tRNA formyltransferase
 methionyl-tRNA formyltransferase
 methionyl-tRNA formyltransferase
 methionyl-tRNA formyltransferase
 methionyl-tRNA formyltransferase
 ABC transporter ATP-binding protein
 ABC transporter ATP-binding protein
 ABC transporter ATP-binding protein
 2-dehydro-3-deoxyphosphooctonate aldolase
 2-dehydro-3-deoxyphosphooctonate aldolase
 2-dehydro-3-deoxyphosphooctonate aldolase
 2-dehydro-3-deoxyphosphooctonate aldolase
 2-dehydro-3-deoxyphosphooctonate aldolase
 2-dehydro-3-deoxyphosphooctonate aldolase
 CTP synthetase
 CTP synthetase
 CTP synthetase
 CTP synthetase
 CTP synthetase
 CTP synthetase
 CTP synthetase
 CTP synthetase
 CTP synthetase
 endoflagellar hook-filament protein
 endoflagellar hook-filament protein
 endoflagellar hook-filament protein
 endoflagellar hook-filament protein
 endoflagellar hook-filament protein
 penicillin tolerance protein
 penicillin tolerance protein
 penicillin tolerance protein
 histidine kinase/response regulator hybrid protein
 hypothetical protein LA_2436
 hypothetical protein LA_2436
 hypothetical protein LA_2443
 methionyl aminopeptidase
 methionyl aminopeptidase
 methionyl aminopeptidase
 methionyl aminopeptidase
 methionyl aminopeptidase
 hypothetical protein LA_2458
 hypothetical protein LA_2458
 hypothetical protein LA_2458
 hypothetical protein LA_2458
 polymerase
 polymerase
 hypothetical protein LA_2497

hypothetical protein LA_2497
hypothetical protein LA_2497
hypothetical protein LA_2497
hypothetical protein LA_2497
hypothetical protein LA_2497
hypothetical protein LA_2497
hypothetical protein LA_2497

glycosyltransferase

glycosyltransferase

exodeoxyribonuclease

exodeoxyribonuclease

hypothetical protein LA_2531

hypothetical protein LA_2531

hypothetical protein LA_2531

hypothetical protein LA_2531

phosphate sodium symporter

phosphate sodium symporter

phosphate sodium symporter

phosphate sodium symporter

phosphate sodium symporter

phosphate sodium symporter

phosphate sodium symporter

phosphate sodium symporter

phosphate sodium symporter

acyl-CoA thioesterase

acyl-CoA thioesterase

protein kinase

sodium:alanine symporter/phosphatidylserine decarboxylase

sodium:alanine symporter/phosphatidylserine decarboxylase

sodium:alanine symporter/phosphatidylserine decarboxylase

short-chain dehydrogenase

short-chain dehydrogenase

short-chain dehydrogenase

short-chain dehydrogenase

short-chain dehydrogenase

short-chain dehydrogenase

short-chain dehydrogenase

short-chain dehydrogenase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase

S-adenosylmethionine synthetase
S-adenosylmethionine synthetase
S-adenosylmethionine synthetase
S-adenosylmethionine synthetase
S-adenosylmethionine synthetase
adenylate/guanylate cyclase
biotin carboxylase
biotin carboxylase
biotin carboxylase
biotin carboxylase
flagellar basal body rod protein FlgG
flagellar basal body rod protein FlgG
lipopolysaccharide heptosyltransferase II
lipopolysaccharide heptosyltransferase II
bacterioferritin
bacterioferritin
bacterioferritin
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
hypothetical protein LA_2726
hypothetical protein LA_2726
hypothetical protein LA_2726
acetyl-CoA carboxylase biotin carboxyl carrier protein subunit
acetyl-CoA carboxylase biotin carboxyl carrier protein subunit
hypothetical protein LA_2742
hypothetical protein LA_2746
hypothetical protein LA_2746
hypothetical protein LA_2746
rod shape-determining protein
rod shape-determining protein
rod shape-determining protein MreC
cGMP-specific phosphodiesterase
cGMP-specific phosphodiesterase
cGMP-specific phosphodiesterase
cGMP-specific phosphodiesterase
F0F1 ATP synthase subunit beta

F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
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F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta
F0F1 ATP synthase subunit beta

ATP synthase C chain

F0F1 ATP synthase subunit A

F0F1 ATP synthase subunit A

hypothetical protein LA_2800

hypothetical protein LA_2800

hypothetical protein LA_2800

methyl-accepting chemotaxis protein

methyl-accepting chemotaxis protein

methyl-accepting chemotaxis protein

methyl-accepting chemotaxis protein

methyl-accepting chemotaxis protein

methyl-accepting chemotaxis protein

two component system sensor histidine kinase\response regulator

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

citrate lyase

MhpC-like protein

MhpC-like protein

MhpC-like protein

MhpC-like protein

dihydrolipoamide dehydrogenase
pyruvate kinase
pyruvate kinase
pyruvate kinase
pyruvate kinase
pyruvate kinase
pyruvate kinase
phosphoribosylaminoimidazole synthetase
phosphoribosylaminoimidazole synthetase
phosphoribosylaminoimidazole synthetase
phosphoribosylaminoimidazole synthetase
phosphoribosylaminoimidazole synthetase
hypothetical protein LA_2936
hypothetical protein LA_2936
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
thiosulfate sulfurtransferase
antimicrobial peptide ABC transporter ATPase
antimicrobial peptide ABC transporter ATPase
hypothetical protein LA_3017
Fe-S metabolism protein
Fe-S metabolism protein
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
nickel ABC transporter periplasmic protein OppA
guanosine polyphosphate pyrophosphohydrolase/synthetase
guanosine polyphosphate pyrophosphohydrolase/synthetase
hypothetical protein LA_3091
hypothetical protein LA_3091
hypothetical protein LA_3091
hypothetical protein LA_3091
hypothetical protein LA_3091

OmpL1

alpha/beta hydrolase superfamily protein

hypothetical protein LA_3219

Fe-S-cluster-containing hydrogenase

1-deoxy-D-xylulose 5-phosphate reductoisomerase

30S ribosomal protein S2

transcript cleavage factor/unknown domain fusion protein

transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein
transcript cleavage factor/unknown domain fusion protein

flagellar filament sheath protein

flagellar filament sheath protein

flagellar filament sheath protein

flagellar filament sheath protein

flagellar filament sheath protein

flagellar filament sheath protein

hypothetical protein LA_3397

hypothetical protein LA_3397

hypothetical protein LA_3397

hypothetical protein LA_3397

hypothetical protein LA_3405

hypothetical protein LA_3405

hypothetical protein LA_3405

30S ribosomal protein S9

30S ribosomal protein S9

30S ribosomal protein S9

30S ribosomal protein S9

30S ribosomal protein S9

hypothetical protein LA_3433

hypothetical protein LA_3433

hypothetical protein LA_3433

riboflavin biosynthesis protein

riboflavin biosynthesis protein

riboflavin biosynthesis protein

FAD/FMN-containing dehydrogenase

FAD/FMN-containing dehydrogenase

FAD/FMN-containing dehydrogenase

short chain dehydrogenase

short chain dehydrogenase

short chain dehydrogenase

short chain dehydrogenase

short chain dehydrogenase

short chain dehydrogenase

short chain dehydrogenase

hypothetical protein LA_3492

methyl-accepting chemotaxis transducer transmembrane protein
thioesterase-like protein
hypothetical protein LA_3534
hypothetical protein LA_3534
hypothetical protein LA_3534
hypothetical protein LA_3534
activator of Hsp90 ATPase 1 family protein
activator of Hsp90 ATPase 1 family protein
selenocysteine lyase
selenocysteine lyase
selenocysteine lyase
selenocysteine lyase
selenocysteine lyase
selenocysteine lyase
Fe-S cluster assembly ABC transporter permease
Fe-S cluster assembly ABC transporter permease
hypothetical protein LA_3584
DNA-binding ferritin-like protein
DNA-binding ferritin-like protein
DNA-binding ferritin-like protein
lysophospholipase
lysophospholipase
anthranilate synthase component II
anthranilate synthase component II
multidrug ABC transporter ATPase/permease
multidrug ABC transporter ATPase/permease
multidrug ABC transporter ATPase/permease
ketosteroid isomerase-like protein
ketosteroid isomerase-like protein
ketosteroid isomerase-like protein
hypothetical protein LA_3664
hypothetical protein LA_3664
hypothetical protein LA_3664
uracil-DNA glycosylase
uracil-DNA glycosylase
uracil-DNA glycosylase
hypothetical protein LA_3669
multidrug ABC transporter ATPase/permease
multidrug ABC transporter ATPase/permease
hypothetical protein LA_3697
hypothetical protein LA_3697
antimicrobial peptide ABC transporter ATPase
antimicrobial peptide ABC transporter ATPase
antimicrobial peptide ABC transporter ATPase
phosphoribosylamine--glycine ligase
phosphoribosylamine--glycine ligase
phosphoribosylamine--glycine ligase
phosphoribosylamine--glycine ligase

phosphoribosylamine--glycine ligase
phosphoribosylamine--glycine ligase
transcriptional regulator
transcriptional regulator
transcriptional regulator
transcriptional regulator
pirin-like protein
pirin-like protein
pirin-like protein
pirin-like protein
pirin-like protein
pirin-like protein
pirin-like protein
acriflavine resistance protein
acriflavine resistance protein
acriflavine resistance protein
hypothetical protein LA_3911
hypothetical protein LA_3911
hypothetical protein LA_3911
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
acyl-CoA dehydrogenase
phosphoesterase
phosphoesterase
phosphoesterase
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
hypothetical protein LA_3961
aldol/keto reductase
potassium/proton antiporter

potassium/proton antiporter
hypothetical protein LA_4000
hypothetical protein LA_4000
hypothetical protein LA_4000
hypothetical protein LA_4025
hypothetical protein LA_4025
hypothetical protein LA_4025
hypothetical protein LA_4025
hypothetical protein LA_4025
hypothetical protein LA_4025

organic radical activating enzyme
lauroyl/myristoyl acyltransferase
lauroyl/myristoyl acyltransferase
lauroyl/myristoyl acyltransferase

DEAD/DEAH box helicase
DEAD/DEAH box helicase
DEAD/DEAH box helicase
DEAD/DEAH box helicase
DEAD/DEAH box helicase
DEAD/DEAH box helicase
DEAD/DEAH box helicase
DEAD/DEAH box helicase
DEAD/DEAH box helicase

ankyrin repeat-containing protein
ankyrin repeat-containing protein
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase

hypothetical protein LA_4084
hypothetical protein LA_4084
amidophosphoribosyltransferase
amidophosphoribosyltransferase
amidophosphoribosyltransferase
amidophosphoribosyltransferase
amidophosphoribosyltransferase

ribonuclease D
ribonuclease D
ribonuclease D
ribonuclease D
ribonuclease D
ribonuclease D

bifunctional ornithine acetyltransferase/N-acetylglutamate synthase
bifunctional ornithine acetyltransferase/N-acetylglutamate synthase
bifunctional ornithine acetyltransferase/N-acetylglutamate synthase
bifunctional ornithine acetyltransferase/N-acetylglutamate synthase
bifunctional ornithine acetyltransferase/N-acetylglutamate synthase

bifunctional ornithine acetyltransferase/N-acetylglutamate synthase

two component system sensor histidine kinase

two component system sensor histidine kinase

thioesterase

thioesterase

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

hypothetical protein LA_4154

endoflagellar motor protein

hypothetical protein LA_4185

hypothetical protein LA_4185

hypothetical protein LA_4185

hypothetical protein LA_4185

hypothetical protein LA_4185

hypothetical protein LA_4185

hypothetical protein LA_4185

hypothetical protein LA_4185

hypothetical protein LA_4212

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ferredoxin-like sulfite reductase

ketol-acid reductoisomerase

ketol-acid reductoisomerase

ketol-acid reductoisomerase

ketol-acid reductoisomerase

ketol-acid reductoisomerase
ketol-acid reductoisomerase
ketol-acid reductoisomerase
ketol-acid reductoisomerase
ketol-acid reductoisomerase
ketol-acid reductoisomerase
redox protein OsmC
redox protein OsmC
dihydroorotate dehydrogenase 2
hypothetical protein LA_4314a
hypothetical protein LA_4318
carboxypeptidase I
carboxypeptidase I
carboxypeptidase I
carboxypeptidase I
carboxypeptidase I
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
ferredoxin--NADP reductase
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
DNA polymerase III subunit gamma
branched-chain amino acid aminotransferase
branched-chain amino acid aminotransferase
branched-chain amino acid aminotransferase
branched-chain amino acid aminotransferase
branched-chain amino acid aminotransferase
branched-chain amino acid aminotransferase
glucose-methanol-choline oxidoreductase
hypothetical protein LIF_A0038
hypothetical protein LIF_A0038
NAD(P)(+) transhydrogenase alpha subunit
NAD(P)(+) transhydrogenase alpha subunit
NAD(P)(+) transhydrogenase alpha subunit

OmpA family protein
 hypothetical protein LIF_A0060
 hypothetical protein LIF_A0060
 hypothetical protein LIF_A0060
 hypothetical protein LIF_A0060
 enoyl-CoA hydratase
 long-chain-fatty-acid CoA ligase
 hypothetical protein LIF_A0106
 hypothetical protein LIF_A0106
 hypothetical protein LIF_A0115
 hypothetical protein LIF_A0115
 hypothetical protein LIF_A0117
 hypothetical protein LIF_A0117
 LipL45-like lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 hypothetical protein LIF_A0126
 hypothetical protein LIF_A0126
 hypothetical protein LIF_A0126
 hypothetical protein LIF_A0126
 transcriptional regulator
 hypothetical protein LIF_A0139
 NADH dehydrogenase (ubiquinone) chain G
 NADH dehydrogenase (ubiquinone) chain G
 hypothetical protein LIF_A0146
 preprotein translocase subunit YidC
 preprotein translocase subunit YidC
 cytochrome c oxidase subunit II
 cytochrome c oxidase subunit II
 integral membrane protein with PIN domain
 integral membrane protein with PIN domain
 hypothetical protein LIF_A0229
 hypothetical protein LIF_A0232
 hypothetical protein LIF_A0232
 lipoprotein releasing system, LolD ATPase component
 lipoprotein releasing system, LolD ATPase component
 cAMP-binding protein
 Zn-dependent alcohol dehydrogenase
 NAD(P)(+) transhydrogenase beta component
 NAD(P)(+) transhydrogenase beta component
 glycerophosphoryl diester phosphodiesterase
 putative lipoprotein
 hypothetical protein LIF_A0297
 hypothetical protein LIF_A0297
 hypothetical protein LIF_A0321
 hypothetical protein LIF_A0331

ATP-dependent protease ClpA
 electron transfer flavoprotein subunit beta
 putative lipoprotein
 putative lipoprotein
 hypothetical protein LIF_A0374
 hypothetical protein LIF_A0374
 hypothetical protein LIF_A0378
 riboflavin synthase subunit beta
 hypothetical protein LIF_A0398
 hypothetical protein LIF_A0398
 hypothetical protein LIF_A0398
 hypothetical protein LIF_A0398
 hypothetical protein LIF_A0402
 hypothetical protein LIF_A0402
 hypothetical protein LIF_A0402
 hypothetical protein LIF_A0402
 putative lipoprotein
 hypothetical protein LIF_A0449
 cation/multidrug efflux pump
 putative periplasmic solute-binding protein
 putative periplasmic solute-binding protein
 bifunctional permease/carbonic anhydrase
 bifunctional permease/carbonic anhydrase
 bifunctional permease/carbonic anhydrase
 bifunctional permease/carbonic anhydrase
 LipL41
 LipL41
 oxidoreductase-related protein
 oxidoreductase-related protein
 hypothetical protein LIF_A0534
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 methyl-accepting chemotaxis protein
 elongation factor Tu
 50S ribosomal protein L22
 30S ribosomal protein S3
 30S ribosomal protein S3
 30S ribosomal protein S3
 50S ribosomal protein L16
 50S ribosomal protein L14
 30S ribosomal protein S8
 30S ribosomal protein S8
 30S ribosomal protein S8
 50S ribosomal protein L6
 30S ribosomal protein S5

30S ribosomal protein S5
 50S ribosomal protein L15
 adenylate kinase
 L,L-diaminopimelate aminotransferase
 putative Zn-dependent hydrolase
 hypothetical protein LIF_A0647
 hypothetical protein LIF_A0647
 trypsin-like serine protease
 hypothetical protein LIF_A0671
 dolichyl-phosphate-mannose-protein mannosyltransferase
 aldehyde dehydrogenase
 aldehyde dehydrogenase
 hypothetical protein LIF_A0717
 hypothetical protein LIF_A0717
 NADH dehydrogenase (ubiquinone) chain J
 transcription elongation factor NusA
 translation initiation factor IF-2
 translation initiation factor IF-2
 30S ribosomal protein S15
 hypothetical protein LIF_A0776
 ATP-binding protein of an ABC transporter complex
 membrane carboxypeptidase/penicillin-binding protein
 membrane carboxypeptidase/penicillin-binding protein
 lipid-a-disaccharide synthase
 lipid-a-disaccharide synthase
 lipid-a-disaccharide synthase
 hypothetical protein LIF_A0898
 hypothetical protein LIF_A0898
 hypothetical protein LIF_A0924
 hypothetical protein LIF_A0924
 hypothetical protein LIF_A0924
 hypothetical protein LIF_A0924
 preprotein translocase subunit SecD
 preprotein translocase subunit SecD
 preprotein translocase subunit SecF
 ABC transporter ATP-binding protein
 ABC transporter ATP-binding protein
 methyl-accepting chemotaxis protein
 hypothetical protein LIF_A0978
 hypothetical protein LIF_A0978
 hypothetical protein LIF_A0978
 hypothetical protein LIF_A0978
 hypothetical protein LIF_A0978
 membrane carboxypeptidase/penicillin-binding protein
 membrane carboxypeptidase/penicillin-binding protein
 dihydrolipoamide dehydrogenase
 alpha-ketoglutarate decarboxylase
 50S ribosomal protein L20

hypothetical protein LIF_A1010
 hypothetical protein LIF_A1010
 hypothetical protein LIF_A1010
 chemotaxis protein histidine kinase CheA
 chemotaxis protein histidine kinase CheA
 chemotaxis protein histidine kinase CheA
 chemotaxis protein histidine kinase CheA
 30S ribosomal protein S1
 hypothetical protein LIF_A1024
 transcriptional regulator
 phosphoglycerol transferase-related protein
 phosphoglycerol transferase-related protein
 glutamine synthetase
 phosphoribosylformylglycinamide (FGAM) synthase
 phosphoribosylformylglycinamide (FGAM) synthase
 putative lipoprotein
 hypothetical protein LIF_A1067
 histidine kinase sensor protein
 histidine kinase sensor protein
 transcriptional regulator
 GTP-binding protein BipA
 putative lipoprotein
 putative lipoprotein
 export protein
 hypothetical protein LIF_A1130
 hypothetical protein LIF_A1130
 hypothetical protein LIF_A1130
 adenylate/guanylate cyclase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 UDP-glucose 6-dehydrogenase
 hypothetical protein LIF_A1202
 hypothetical protein LIF_A1211
 hypothetical protein LIF_A1211
 carboxy-terminal processing protease
 carboxy-terminal processing protease
 chemotaxis protein CheW
 chemotaxis protein CheW
 heavy metal efflux pump
 heavy metal efflux pump
 heavy metal efflux pump
 Hsp20/alpha crystallin molecular chaperone
 ABC transporter ATP-binding protein
 ABC transporter ATP-binding protein
 N-acetylneuraminic (sialic) acid synthetase
 N-acetylneuraminic (sialic) acid synthetase
 glucose-1-phosphate thymidyltransferase
 50S ribosomal protein L9

50S ribosomal protein L9
 signal peptidase I
 HD family protein
 hypothetical protein LIF_A1397
 hypothetical protein LIF_A1401
 hypothetical protein LIF_A1401
 antisigma factor antagonist-related protein
 antisigma factor antagonist-related protein
 antisigma factor antagonist-related protein
 ATP-dependent protease ClpA
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 succinate dehydrogenase flavoprotein subunit
 succinate dehydrogenase flavoprotein subunit
 succinate dehydrogenase flavoprotein subunit
 succinate dehydrogenase flavoprotein subunit
 aldo/keto oxidoreductase
 hypothetical protein LIF_A1547
 CAP family transcription factor
 acyl-CoA dehydrogenase
 hydrolase
 hypothetical protein LIF_A1568
 ATP-dependent protease ClpP
 preprotein translocase subunit SecA
 preprotein translocase subunit SecA
 cation efflux system protein
 short-chain dehydrogenase
 short-chain dehydrogenase
 short-chain dehydrogenase
 FAD-binding oxidoreductase
 FAD-binding oxidoreductase
 hypothetical protein LIF_A1600
 hypothetical protein LIF_A1604
 glycosyltransferase
 hypothetical protein LIF_A1636
 hypothetical protein LIF_A1637
 putative lipoprotein
 putative hydrolase
 putative hydrolase
 undecaprenyldiphospho-muramoylpentapeptide beta- N-acetylglucosaminyltransferase
 hypothetical protein LIF_A1659
 hypothetical protein LIF_A1672

HflC membrane associated protease
 HflC membrane associated protease
 peptidyl-prolyl cis-trans isomerase
 hypothetical protein LIF_A1682
 flagellar motor switch protein FliM
 flagellar motor switch protein FliM
 gamma-glutamyltranspeptidase
 glycerol kinase
 oxidoreductase
 oxidoreductase
 oxidoreductase
 SGNH-hydrolase
 DNA mismatch repair protein mutS
 isocitrate/isopropylmalate dehydrogenase
 putative esterase of the alpha-beta hydrolase
 putative esterase of the alpha-beta hydrolase
 putative esterase of the alpha-beta hydrolase
 putative esterase of the alpha-beta hydrolase
 long-chain-fatty-acid CoA ligase
 long-chain-fatty-acid CoA ligase
 long-chain-fatty-acid CoA ligase
 long-chain-fatty-acid CoA ligase
 serine protease
 serine protease
 serine protease
 excinuclease ABC subunit A
 endoflagellar motor protein B
 magnesium transporter
 sensor histidine kinase and response regulator of a two component complex
 sensor histidine kinase and response regulator of a two component complex
 sensor histidine kinase and response regulator of a two component complex
 sensor histidine kinase and response regulator of a two component complex
 RNA polymerase sigma-70 factor
 RNA polymerase sigma-70 factor
 RNA polymerase sigma-70 factor
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 glycerol-3-phosphate dehydrogenase
 hypothetical protein LIF_A1828
 methyl-accepting chemotaxis protein
 hypothetical protein LIF_A1837
 alkylglycerone-phosphate synthase
 alkylglycerone-phosphate synthase
 alkylglycerone-phosphate synthase
 alkylglycerone-phosphate synthase
 PurH
 LipL45

LipL45
LipL45
hypothetical protein LIF_A1878
long-chain-fatty-acid CoA ligase
long-chain-fatty-acid CoA ligase
long-chain-fatty-acid CoA ligase
transcriptional regulator
3-polyprenyl-4-hydroxybenzoate decarboxylase
3-polyprenyl-4-hydroxybenzoate decarboxylase
glucose/sorbose dehydrogenase
glucose/sorbose dehydrogenase
actin-like ATPase
actin-like ATPase
type II secretory pathway component protein G
type II secretory pathway component protein G
type II secretory pathway component protein D
type II secretory pathway component protein D
50S ribosomal protein L19
hypothetical protein LIF_A1958
endoflagellar filament core protein
heavy metal efflux pump
heavy metal efflux pump
heavy metal efflux pump
heavy metal efflux pump
hypothetical protein LIF_A2014
hypothetical protein LIF_A2016
SMC-like protein
SMC-like protein
hypothetical protein LIF_A2026
hypothetical protein LIF_A2026
hypothetical protein LIF_A2026
putative lipoprotein
amidase
hypothetical protein LIF_A2057
hypothetical protein LIF_A2057
hypothetical protein LIF_A2070
hypothetical protein LIF_A2070
adenylate/guanylate cyclase
adenylate/guanylate cyclase
LipL45-related protein
LipL45-related protein
glycosyl hydrolase
hypothetical protein LIF_A2106
hypothetical protein LIF_A2106
hypothetical protein LIF_A2106
hypothetical protein LIF_A2106
hypothetical protein LIF_A2106
hypothetical protein LIF_A2113

flagellar MS-ring protein
flagellar MS-ring protein
short-chain dehydrogenase
LipL32
LipL32
LipL32
LipL32
adenylate/guanylate cyclase
adenylate/guanylate cyclase
chaperonin GroEL
flagellar basal body P-ring protein
flagellar basal body P-ring protein
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
Fe-S oxidoreductase
acyltransferase
acyltransferase
putative lipoprotein
protein MreC
protein MreC
actin-like ATPase
actin-like ATPase
actin-like ATPase
actin-like ATPase
cGMP-specific phosphodiesterase
F0F1 ATP synthase subunit beta
ATP synthase F1 subunit delta
ATP synthase F1 subunit delta
methyl-accepting chemotaxis protein
hypothetical protein LIF_A2300
alpha-galactosidase
adenylate/guanylate cyclase
prolipoprotein diacylglycerol transferase
hypothetical protein LIF_A2478
glycosyltransferase
OppA
OppA
OppA
guanosine polyphosphate pyrophosphohydrolase/synthetase
guanosine polyphosphate pyrophosphohydrolase/synthetase
anti-sigma factor antagonist
LipL71
LipL71
LipL71
LipL71
putative lipoprotein
alpha/beta hydrolase superfamily protein

alpha/beta hydrolase superfamily protein
 alpha/beta hydrolase superfamily protein
 metallophosphoesterase
 metallophosphoesterase
 metallophosphoesterase
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 putative lipoprotein
 hypothetical protein LIF_A2617
 Fe-S-cluster-containing hydrogenase
 molybdopterin oxidoreductase iron-sulfur binding subunit
 molybdopterin oxidoreductase iron-sulfur binding subunit
 hypothetical protein LIF_A2620
 adenylate cyclase-like protein
 adenylate cyclase-like protein
 adenylate cyclase-like protein
 tryptophan synthase subunit beta
 zinc metalloprotease
 zinc metalloprotease
 zinc metalloprotease
 hypothetical protein LIF_A2650
 glutathione transferase
 glutathione transferase
 glutathione transferase
 surface antigen OrfC lipoprotein
 surface antigen OrfC lipoprotein
 transcript cleavage factor/hypothetical protein
 transcript cleavage factor/hypothetical protein
 transcript cleavage factor/hypothetical protein
 transcript cleavage factor/hypothetical protein
 transcript cleavage factor/hypothetical protein
 transcript cleavage factor/hypothetical protein
 50S ribosomal protein L13
 30S ribosomal protein S7
 30S ribosomal protein S12
 50S ribosomal protein L7/L12
 50S ribosomal protein L1
 DEAD/DEAH box helicase
 outer membrane receptor for Fe³⁺-dicitrate/TonB-dependent receptor
 hypothetical protein LIF_A2802
 hypothetical protein LIF_A2804
 hypothetical protein LIF_A2804
 hypothetical protein LIF_A2804
 hypothetical protein LIF_A2828
 hypothetical protein LIF_A2858
 hypothetical protein LIF_A2858
 hypothetical protein LIF_A2858

hypothetical protein LIF_A2871
 ATP-dependent Lon protease
 ATP-dependent Lon protease
 MaoC-like acyl dehydratase
 2-dehydropantoate 2-reductase
 2-dehydropantoate 2-reductase
 2-dehydropantoate 2-reductase
 ATPase and permease components of ABC-type multidrug transport system
 homoserine dehydrogenase
 anti-Sigma factor antagonist
 enoyl-CoA hydratase
 hydrolase
 hydrolase
 membrane carboxypeptidase/penicillin-binding protein
 ATPase and permease components of ABC-type multidrug transport system
 ATPase and permease components of ABC-type multidrug transport system
 ATPase and permease components of ABC-type multidrug transport system
 DnaK protein
 DnaK protein
 heat shock protein DnaJ
 heat shock protein DnaJ
 oxidoreductase
 ATPase component of ABC-type antimicrobial peptide transport system
 hypothetical protein LIF_A3008
 putative hydrolase
 glycosyltransferase
 30S ribosomal protein S20
 hypothetical protein LIF_A3053
 ATP-dependent Zn protease
 ATP-dependent Zn protease
 ATP-dependent Zn protease
 50S ribosomal protein L25
 transcriptional regulator
 cation/multidrug efflux pump
 cation/multidrug efflux pump
 hypothetical protein LIF_A3092
 hypothetical protein LIF_A3092
 hypothetical protein LIF_A3092
 serine protease
 serine protease
 NAD(P)H steroid dehydrogenase
 NAD(P)H steroid dehydrogenase
 hypothetical protein LIF_A3166
 hypothetical protein LIF_A3166
 hypothetical protein LIF_A3182
 adenylate/guanylate cyclase
 adenylate/guanylate cyclase
 adenylate/guanylate cyclase

hypothetical protein LIF_A3213
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
apolipoprotein n-acyltransferase
putative lipoprotein
Zn-dependent alcohol dehydrogenase
Zn-dependent alcohol dehydrogenase
serine phosphatase RsbU, regulator of sigma subunit
acetyl-CoA acetyltransferase
hypothetical protein LIF_A3311
hypothetical protein LIF_A3311
hypothetical protein LIF_A3311
ATP-binding protein of an ABC transporter complex
ATP-binding protein of an ABC transporter complex
GMC oxidoreductase
GMC oxidoreductase
hypothetical protein LIF_A3337
DNA gyrase subunit A
DNA gyrase subunit B
DNA gyrase subunit B
DNA gyrase subunit B
polysaccharide deacetylase
methyl-accepting chemotaxis protein
acetyl-CoA synthetase
acetyl-CoA synthetase
hypothetical protein LIF_A3408
sodium/hydrogen antiporter
metallopeptidase

Total Conserved Peptides

Sequence

(R)IIEAVAK(E)
(R)LLLGALNDIYLYK(K)
(K)AIHAVEGVITTR(E)
(K)ETFLSATDLEISIK(T)
(K)FSTISISKEEFQVSLR(Q)
(K)IKVNTSEFLK(A)
(K)LIEGNFPNYEQVIPK(N)
(K)SILSNLK(I)
(R)FIFNGLYMIPNGDK(L)
(R)FIFNGLYMIPNGDKLIFVGTGDR(R)
(R)KTSYAIAHEDQR(F)
(R)TLPSPLQFK(D)
(K)FITVLLTPMDLK(I)
(K)EGLTAVISIK(I)
(K)GIMQTLSSSEGLTLFFEENPNITK(K)
(K)GIMQTLSSSEGLTLFFEENPNITKK(I)
(K)GLVLVVEDHRR(G)
(K)ILSSEEIR(V)
(K)IMIMTDADIDGSHIR(T)
(K)IPQPQFNSQTK(E)
(K)ISTIEVVMTILHAGGK(F)
(K)KHPTGLSGEDVK(E)
(K)TVLEGGGLPGK(L)
(K)VIHFER(N)
(R)FRELAFLNK(G)
(R)GYLYVAQPPLYLIK(H)
(R)NEFQFSGGIVSFVEHINENK(H)
(R)NTQAILPLK(G)
(R)TLLLTFFFR(Y)
(R)TLNDFLK(K)
(R)VLVSALGTGIGEDEFNIDKIR(Y)
(K)AAMTHDNIMFFSNIGK(V)
(K)EILTAYAAHR(R)
(K)IVGEVIGNYHPHGDAVYEALVR(M)
(K)KDANAQVILNQLYK(M)
(K)LIIDLK(D)
(K)SGIIAIGLR(E)
(K)VESMTDKDEVMIFSK(K)
(K)VLSYNIAGKPDADALK(N)
(R)AHILEGLK(I)
(R)ETIDAVIAVIR(N)
(R)EVIVVTEIPYQVNKK(V)
(R)ILHAMNER(A)
(R)MVQEFSLR(V)
(K)ILQVATESLK(K)
(K)ILQVATESLKK(A)

(K)KEDQVSLVYGMEEVTGLENVEAEVTTK(K)
(K)KQEAQILGNR(Y)
(K)LNNYYDVWIK(T)
(K)TISTSLSKDPLLGETVK(L)
(K)TISTSLSKDPLLGETVKLLK(K)
(R)YANFDQWIYK(V)
MVGETVESASGVSDGEATASVIVSQSQGVVK(G)
(R)LQGASDVVKK(M)
(K)SGLEFFKPISTGK(G)
(-)MNDLNFVK(N)
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(K)TVLVTGSTR(G)
(R)ALAVEWIGSGYR(V)
(R)LDVLVNNAGIASNKPA AFLK(E)
(R)YFAEGFK(N)
(-)MILSLHSINPEK(R)
(K)ITPGPFTFITSANK(H)
(K)IYIFPTDTVYALLADSQSK(L)
(K)ATQQLVPR(V)
(K)VVIASAK(G)
(K)VVIASAKGETTENPAPR(A)
(R)GLLASR(T)
(R)TNTLLSIPmLFLmGAAR(N)
(R)TNTLLSIPmLFLmGAAR(N)
(R)VLWWFR(W)
(R)IVEGTYPPGYIPK(R)
(-)MEHPLAPPIDFPLEEVKR(R)
(K)FIVEYLR(Q)
(K)HFLSGNSEVVVSNGK(V)
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(R)AMLVPSFPTNR(K)
(R)AMLVPSFPTNRK(E)
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(R)TMIGAFFLADQIKEDTK(V)
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(K)NLPITSQEITIPINSVLISR(T)
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(R)IFNTYGPR(M)
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(K)VFSILLER(I)
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(K)SVIVEAR(V)
(K)TILQSVESFEK(S)
(R)NVPQEEVGSNLIINHNR(C)
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(K)GLWITLK(H)
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(R)MMQLVGGPIIGER(Q)

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(K)AWFYTYLNR(S)
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(R)LITLLSER(I)
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(R)RYNVPR(V)
(R)TGTIELK(M)
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(R)VAFINKLDR(T)

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(K)VNSYPSFVILDR(S)
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(R)VVIVPGYGMABAQAQHAVR(D)
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(R)RPTGSFIFLGPTGVGK(T)
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(R)VIQILSR(K)
(R)VLSLDLASLIAGTK(Y)
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(K)LHLGNFFSVIR(K)
(K)SNIYAIHSLFLDAK(G)
(R)EVGPVFK(I)
(R)ILTGVPQSGK(L)
(K)INILVENHLLAK(Q)
(R)FLWFYSPAR(A)

(R)GTSGGVFGLLSGYEEVTQVGGSIR(L)
(R)MSEISSLR(A)
(K)AQNPAAVLLPHTSQGK(D)
(K)AQNPAAVLLPHTSQGKDYSR(V)
(K)IVSSDLSSGSKVQLTEASIIVSGGR(G)
(K)KPIYSGK(A)
(K)VATYGIVGDLFEVVPAAVTAEFK(K)
(K)VATYGIVGDLFEVVPAAVTAEFKK(V)
(K)VGAGIADVVGFSVDGGK(V)
(K)VGAGIADVVGFSVDGGKVVA(K)
(K)VIALLINGVEK(H)
(K)VQLTEASIIVSGGR(G)
(K)VTSPIQIFTVRPNSQEITQK(A)
(K)YIVAINK(D)
(K)YIVAINKDGDPIFK(V)
(R)AAVDAGWISHSHQVGQTGK(T)
(-)MKIIVLVKQVPDTETSIK(V)
(K)HGGEVIAVSLGPDR(V)
(K)IIVLVK(Q)
(K)IIVLVKQVPDTETSIK(V)
(K)WIISPYDEFAIEEGIR(L)
(R)EKHGGEVIAVSLGPDR(V)
(R)KLEAADANAFASQLVK(A)
(R)TAYAMGADR(A)
(K)EHDDYETFNLSLFR(R)
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(K)LVATQMAER(V)
(K)NIVADLK(K)
(K)NIVADLKK(I)
(K)QYITNGNVGSVFLVYAK(M)
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(R)ALVYQVASGIHPESR(N)
(R)TTSFIVESSFPGFSVGK(K)
(R)TTSFIVESSFPGFSVGKK(E)
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(K)TTITFENKPQYYNSPSGNVVPK(A)
(K)FLHVLSR(S)
(K)GPFYVLSHER(I)
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(K)HTAMLSIFR(H)
(K)ILEFSSLLK(Q)
(K)ISYDYGIVNLNYHSSWK(H)
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(K)LAGEVLAPLLK(Y)
(K)SELLQNLLDHSSSQELDLNR(I)

(K)SVIHF(-)
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(K)YVIGISR(L)
(R)HFHTPETLK(L)
(R)IKDDGTLNGHHILR(K)
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(K)LSEALNQYYFER(N)
(K)EALLR(Y)
(K)MTVAEINAAIQTSK(E)
(K)YILHLNAR(L)
(R)LEELAVK(G)
(K)ATLEGR(L)
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(K)ELGLNPEITNVNGGAVAIGHPLGASGAR(V)
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(K)KPVILEKDEFIK(G)
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(K)MGIGPALAIPAALKK(A)
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ϻ)EGGTVTAGNASGLNDGAAVTIVASSSYAK(K)
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(R)VTITLAYELK(R)
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(R)LANQVIELEPAHPAAR(K)
(R)LFQMGNTDLYR(K)
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(R)FVNGVLDAILK(N)
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(R)SDEFVADLLDLIKK(K)
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(K)YLNALGSLPDPLRENLEFFRV(-)
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(R)KLELFK(L)
(R)LTSGSPATHFPILTK(F)
(R)NVPKPVELMLK(Y)
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(R)FVVEIIR(E)
(K)ILQILSPTDR(S)

(K)ETDYLFLLK(G)
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(K)IVSPYNTYLNK(G)
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(K)YFLYLVR(F)
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(K)IFNDEINQFLEN_AAIQNYNEIAEK(I)
(K)KALTVSAGVIEEVTK(A)
(K)VAEWVTR(E)
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(K)WLPLLASGER(M)
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(R)GGLGIAGSLITRPE_{Im}SK(A)
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(R)HDDIIPEDIIGGLK(E)
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(R)LKDQFLDSDPSLNYTNSK(S)
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(R)VSELFWTFFVPK(F)
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(R)IIAALDLGTSCLK(V)
(R)VIEAAQAIR(V)
(R)VTVIATGFHK(R)
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(R)FHPIYK(E)
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(K)IGYPVLVRPSYVLGGR(A)
(K)IHLIINTPLSR(V)
(K)ILGTSPDSIDRAEDR(K)
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(K)AVAYDQIDNAPEEKAR(G)
(K)EHILLAR(Q)
(K)FAAEVYVLT(K)(D)
(K)FAIR(E)
(K)LLDQAEAGDNIGALLR(G)
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(K)LMEALDTFVPNPKR(V)
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(R)VEQGVLK(V)
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(R)VIDKPFLmPVEDVFSITGR(G)
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(R)TGATVSGPIPLPTK(K)
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(K)NLLFVSGAVPGTANTVITIEKI(-)
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(K)AFDSIFK(N)
(K)LSVASIYEAIK(A)
(K)LSVASIYEAIKAENANLR(S)
(K)NTGVIGLLVQGENDFLK(K)
(K)NTGVIGLLVQGENDFLKK(S)
(K)VVEDLDPKEYNTK(A)
(R)AVLSILGK(K)
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(R)NLVITEAALKEMLVQYGAQK(-)
(-)MNLQDVILTPIVTEKSQDLETIGANSK(K)
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(K)FKPVTASR(Y)
(K)IGNAMPIGK(I)
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(R)IIDFK(R)
(R)IIDFKR(R)
(R)KANIPAVVK(S)
(R)SAFISLIC(Y)(D)
(R)TAGSFGTIAGR(D)
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(K)RLSHITVVLSD(-)
(K)VILSASANASVLNNK(V)
(R)AIEPLTK(V)
(R)GYAVNEALDILK(F)
(R)LSHITVVLSD(-)
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(K)VNPIGLR(I)

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(R)FNNAGVVK(V)
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(K)LPIHTEFVK(R)
(R)GSSVSFGEFGLK(A)
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(K)LQELKDSEILEQLEEAR(K)
(-)MIQQETLLQVADNSGIKK(V)
(R)RPDGSYIR(F)
(R)VGFEVVK(G)
(R)VIVEGLNKR(K)
(R)VSRPDKK(E)
(K)ALEAAVEELALITGQRPVK(T)
(K)EIVPELNKK(F)
(K)FSSIMQVPR(L)
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(R)GNYNMSIK(E)
(R)LVNVALPR(V)
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(K)LASGAQIPGVVKSSW(-)
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(K)EEGFIKDYESVK(V)
(K)GIMTGK(N)
(K)GIMTGKNAR(K)
(K)NNIGTLIVSTSK(G)
(K)SILDLMK(E)
(K)SILDLMKEEGFIK(D)
(K)GVSQGWEEK(N)
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(K)VSGIDKQLVGQVAADIR(S)
(K)VVALHGLTR(A)
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(R)SGMIFHGR(I)
(-)MENIIVTQVK(S)
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(K)AIHVIADGFSQSAKEK(I)

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(R)HHIDLPVK(E)
(R)KGPPGMPTK(R)
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(R)NFIAHR(H)
(R)REGVDLFLK(S)
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(R)YRGPVVK(I)
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(K)FVAEPFER(G)
(K)GAGYFR(A)
(K)HVEELELSVR(S)
(K)IIHLELK(G)

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(K)KKDIEVLGTIPVDSIFSPVQK(V)
(K)LSTLGLSFGMR(D)
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(R)GFATTIGNSLR(R)
(R)GYVPAEEK(K)
(R)IEGVNHEFSFIEGVAEDVTR(I)
(R)IILNLK(Q)
(R)RTLMSSIEGAAISAIR(I)
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(R)SLEIDFIGDLVKR(S)
(R)SLNVLR(S)
(R)TLMSSIEGAAISAIR(I)
(R)TLMSSIEGAAISAIR(I)
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(K)NLVTDLKPEVQLHNKR(E)
(R)DALINNMITSLFK(Y)
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(K)AGYLFPEISK(R)
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(K)KETTVLHPLPR(V)
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(R)TIHSLINLLR(H)
(R)VISTVGFQFSSISK(G)
(K)DKLPALR(V)
(K)LPIEPENLPGVDIVVISHAHR(D)
(K)NFFSVLR(W)
(R)FAQGFSATILPIGAFKPR(W)
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(R)MHILTDPIFTGVPPFVK(R)
(R)GFILDPPTFGR(G)

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(R)HGGANQEVLEMLQEIQASGLPVKK(I)
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(R)HISMIR(L)
(R)KLYPNVDFYSGIYR(A)
(R)LPGWIAQWK(E)
(R)LSGFGHR(V)
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(R)QIYTGSTETSYKEAK(K)
(R)AALFLPFLNPSEK(K)
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(K)ILEYFSGALNEVHSPFSSLR(I)
(R)ILTLIESLSSEEKESFFK(T)
(R)IFIAEAYEMFQK(F)
(K)DLIDLEYSKDSLSVEK(I)
(K)FFINGSLK(I)
(K)SLQAEQLYIGVTGK(V)
(R)TPELIQNGVILEGR(C)
(R)VMLLPTSK(I)
(R)VMLLPTSKILGDIR(T)
(K)DLQVLPLTTHVPLVK(V)
(K)IGKEEVEILEPMIQFLK(K)
(K)ISERLIAEASSQILK(K)
(R)GVNLTGLPFIR(V)
(R)LIAEASSQILK(K)
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(R)AGIQLmDVITEISGTK(I)
(R)ISIQLK(E)
(R)ITVTVVR(Q)
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(R)LTITSAPVITK(G)
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(R)AWVILK(E)
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(R)AML_mFDNPGMK(F)
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(R)DGVLIVYLK(G)
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(K)VVAGVTPGK(G)
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(K)IHIALIK(G)
(K)INFMAAFGR(G)
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(R)IILVR(E)
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(K)FIQGIHLSR(T)
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(K)MILINDLK(D)
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(R)ILSEFRPK(M)
(R)KLTPLEVSEFAK(E)
(R)VGLNVIR(I)
(K)ETFMVITYGDGVANVDIKK(L)
(-)MFQNIYK(N)
(R)SPLATRPWQHVLPLSGYLLLGEK(L)
(R)FLFIPEVLGEYTIHNSNQSAALER(H)
(K)ILAGSHIPLR(I)
(K)ALLELLDKPHHPVEIIGTR(H)
(K)ASAATIEVLSK(A)
(K)AVYPINAMGISK(A)
(K)FFVGDVR(D)
(K)ISTLEDYNSHNTKR(L)
(K)KISTLEDYNSHNTK(R)
(K)SGKPITITDPNMTR(F)
(K)SLLITGGTGSFGK(A)
(R)GSVIPLFIEQVK(S)
(R)GVEYVFHAAALK(Q)
(R)YGNVMASR(G)
(K)KTPILFSSSIQAALDNEYGK(S)
(K)TPILFSSSIQAALDNEYGK(S)
(K)TQDAGQFSFFTAHPGVTR(G)
(R)GVFVEMLK(T)
(R)KDLVIPNVGTGLIR(A)
(R)LQSENGNPVFIFR(L)
(K)IPIFHMEAGNR(C)
(K)TGSPMFVNLNYYLEGIK(K)
(K)TGSPMFVNLNYYLEGIKK(S)
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(K)YFVVSAHR(E)
(R)IIHSYTDYVNR(V)
(R)IVDHTADINLTYSNIAR(E)
(R)KPDYFLNAAAGTSGAATIGNVIAK(V)
(R)VLQVLQILEK(Q)
(K)GDMSFIGPRPESMELSEWYEK(D)
(K)VVFSQKR(M)
(R)FALVPLGEALEFR(E)
(K)SASVITDYLFK(F)
(K)SIISGVTELVT(K)(H)
(K)FSPPIFWDLLK(F)
(K)GMIFELK(K)
(K)INVFLASSSPYIK(D)

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(R)LYTENIEVLFK(R)
(R)SIETYLPYLQLFK(N)
(K)IVSGNYPFTYHVFR(K)
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(K)VIDVVVDVR(V)
(R)GFFLETFK(A)
(R)GMHLQIPPYDQGK(L)
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(K)GILAGGSGTR(L)
(R)AVSIEEKPSKPK(S)
(R)IYLERGILNVQVMGR(G)
(R)LYPVTYVVSK(Q)
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(R)MINLETPIVASK(T)
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(R)VELVPIFGK(F)
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(K)VEKEFLINQNILR(S)
(R)NYELTTITR(V)
(K)SINGTSLVNFSLANGR(T)
(R)IVVENFQLLGSK(D)
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(R)SIGLLPYK(V)
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(R)KLPGVEALKK(K)
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(R)IMAAYGAEFELTPR(E)
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(R)FIDIGGIKLLN(-)
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(R)GIFIPEIK(T)
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(K)IAETNNQNTNIVTKDEYDR(I)
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(R)VLAIQSSNGIYSAEDR(Q)
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(K)GLMGAYENMQASESR(I)
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(K)KKEFYEK(E)
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(K)VTVIGEAPIYNGDKQIAK(Q)
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(K)VVLLWGDGKIVDSGTADGR(G)
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(R)GFSFLATKSLEVK(S)
(R)GVVTLEFKPLK(-)
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(R)VAVLVLGK(V)
R)VAVLVLGKVGAPVFPATPGNFGAEIHK(A)
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(K)ILEILK(C)
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(R)GELTYHAKPQLK(N)
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(K)EHYEWANFVIAR(S)
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(R)VLTGSALYEEVSKK(S)
(K)ELILPIK(G)
(R)DLLSGHYLQYNIGFK(T)
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(R)SVTLDNIFR(L)
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(K)VGLETTNR(S)
(R)SISLNYVVLEK(S)
(R)SLSSYEEMVQGNLIR(G)
(K)FAVSELKPGMR(F)
(K)HTILGYQILSQK(M)
(K)ILPHEAIK(S)
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(K)TMDEKPLEVTPVR(E)
(R)IGVVLGPNLDKPIRPFIR(I)
(R)IKITFGNLFR(E)
(R)IYSISDNFSALVTNRPHR(K)
(R)NLILVDLLK(E)
(K)IELIRK GK(V)
(K)LYYLR(N)
(R)IFPLFSPR(I)
(R)RVSYDVGVER(I)
(R)TQNFTVGDTV K(V)
(R)VQIYEGVVISVANEANGK(T)
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(K)GIVILTSPSGIPFNQSIAMDLK(K)
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(R)AILTAASVK(A)

(K)ELIGSRPIEIEVDGGVNDTNIQELR(K)
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(K)SYPEVHNELGR(L)
(K)TDGILYQSIRPGR(E)
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(K)VIVPDLIGK(S)
(K)VIVPDLIGKSYPEVHNELGR(L)
(R)VIVPDVR(G)
(K)KEIRPLK(L)
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(K)GEWAYITSR(T)
(K)LGIPLMISEVSTHK(F)
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(K)IISEASADLKK(V)
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(R)FIYEEEILFKK(T)
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(R)SLIVLGELK(S)
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(R)LQAIAPYRK(W)
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(K)FLGLAK(E)
(K)LKYPYDNYLFFK(S)
(K)NSFIVR(D)
(K)RVELLLYLR(A)
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(R)AIEPIVR(N)
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(R)LYQEGQLQYFFENNHVNAYR(R)
(R)MSPVFDR(R)
(R)NLVDIAIEWSK(N)
(R)VELLLYLR(A)
(R)SLAKVASLK(G)
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(K)YEVVIPSLSILAEPVVAIVEK(N)
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(K)LKELVGR(L)
(R)IVIHEGPENLAFFPTSLS(-)
(K)KPIVLLEGISTAQQR(I)
(K)TLVALAALESQHK(I)
(R)GQIYQPYVVSEIRDPVDNSIINR(T)
(K)LTIGNAFPEKK(A)
(K)YIKPGIR(-)
(R)GIVLTGGGCLLR(G)
(R)GLEMYSK(E)

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(R)IVIGVPSGITEVERR(A)
(R)TPGEIVAIRPMK(D)
(-)MVQEKPLAAIDLGTSFHMIIVR(V)
(R)DLKPD LVVGSSGTIQSIAGMILASR(G)
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(R)LIYFGILQGIPVFDR(K)
(R)LYIEEMLLPFR(K)
(R)LYIEEMLLPFRK(I)
(K)VLSVEGGFVEIK(D)
(K)VSVISPEK(I)
(R)ILVASR(-)
(K)ISDITLNFLGVLLNR(G)
(K)KLPVGAIYEN(-)
(K)NFFLSPTVSNEEK(E)
(K)SIASQLGEIK(K)
(R)IIHLPEIQK(Q)
(R)SYPSLEPAQAAK(L)
(K)FAWDVILK(A)
(R)AETVQN DIKK(A)
(K)KPGFEHYVLEGYEEDR(K)
(K)EAILEGIIESHDK(I)
(K)GVKTP_mPLQAYFK(V)
(K)TPMPLQAYFK(V)
(K)AEAVLGK(E)
(K)EGGIGEIKYPLIADLTK(S)
(K)KEGGIGEIKYPLIADLTK(S)
(K)LGTEVLGVSVDSAFTHLAWK(N)
(R)DYNVLTEGGVALR(G)
(R)GTFIIDPAGVIR(Q)
(K)INEAMNFK(T)
(K)TTTGELTIR(F)
(R)FLQPAFVNQPLHLR(G)
(R)SVIDTLLK(Y)
(K)LLTGLISEQKNESAHSFTSGKR(I)
(K)YPKPGIILLDLNMPR(M)
(R)KPVEFEAFLETIR(A)
(K)ALQQFNELR(Q)
(K)FIGDAIMAIFPAR(A)
(K)LLGVFAVESAE MNAFK(L)
(K)SQIAIPLLVK(D)
(R)AENAVEAALAMMK(A)
(R)YAGQIGQSMGR(E)
(K)FELSELF DQSPGIK(A)
(K)FMTVMVPK(V)
(K)LIAVTVAHMANFK(T)
(K)YIIRPSVAVK(F)
(R)DAELKPHFAR(A)

(R)NVSVIMAR(L)
(R)SLAMLFQK(T)
(R)VNYAGHMSGR(S)
(K)IMASDIFDALTDKDRPYK(R)
(K)LSLISPYEFGFLTIK(K)
(K)SSVAGYVAATGK(I)
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(K)IMTQGSLQTTGK(N)
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(R)RGHVTTINTFDDQGIQR(E)
(R)SLYSGVSGLK(N)
(R)VATAVFNNPAGLDK(A)
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(K)ILPQEIGNLR(K)
(R)NQLISLLPEIGNLK(N)
(-)MQESGLKPILWK(N)
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(K)GAEEALFMLSLENNLTLSK(Y)
(K)GIVSPVTEENLK(K)
(K)IQSFLITDNMAGWVMSSR(K)
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(K)GVAPVPGENGWVR(F)
(K)NLNELVESLQK(E)
(K)IANGLNVPFSELLK(E)
(K)LIRHTK(G)
(R)AMLSQIEQGK(S)
(K)EVQLQIFHSINER(G)
(K)ILSFFSAEDLYR(I)
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(K)FVVNILAQGQDSISNQFASGK(T)
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(K)VISAGSDDGLRPLLYR(R)
(K)IFHFAR(M)
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(R)ALINDINR(S)
(R)EKLTPGIWLAPFLVR(K)
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(K)AYDYYVILK(E)
(R)TSIPSK(E)
(K)LNQGLLTLSFQNR(Y)
(K)VLVELASILTK(T)
(R)VPTYSVYR(H)

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(R)FLIDFPNK(T)
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(K)ISITGPAK(V)
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(K)TPHLADLKPGGK(Y)
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(R)EMLAVTSALVGK(G)
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(R)YSEQPFTLASGR(K)
(K)AVALGLFDYLMYSNTK(G)
(K)SLLEISVSK(E)
(R)SWNSLIQLLPHTENK(I)
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(R)TATHDQIR(S)
(K)LQAEIQTITR(K)

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(K)ENMHLVPAIK(N)
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(K)FLETNIGKR(L)
(K)IVHILFR(G)
(K)NSLELIFR(R)
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(K)RGDLIGLVGSTGK(A)
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(R)NIVHSGADALIYEIR(Q)
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(K)VITIQTLR(T)
(K)LLFDLPGIQIR(D)
(K)SSPIPVNLDLK(S)
(R)ILQLIDVIR(F)
(K)FIIDLK(K)

(K)FIIDLKK(V)
(K)LASIFEIYK(T)
(R)MVFTNLNSDIENLMEITK(L)
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(R)KEDLEILFVNDGSR(D)
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(K)FALFFEELNR(N)
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(K)MLFVIK(N)
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(K)VLLALIEK(G)
(R)ANVNVGLQDVALWHER(D)
(R)DRHAFYLSVLGVTASSLDR(M)
(R)SHGIHAEPMTLGLK(F)
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(K)IEGSLVQILR(I)
(K)LEALSEFSGAGVSMGYLTHTTR(F)
(R)FLDLGLDIERH(-)
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(K)YYEHIIIGHK(H)
(R)ILSIMVSAGLLQEHNF GK(D)
(-)MEITR(R)
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(K)YYTIINLEK(V)
(R)KVFELTK(L)
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(K)QVLLIPPR(K)
(K)SALYAR(A)
(K)VLALSQK(Q)
(K)VLALSQKQQLIDSFADIDK(N)
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(K)YAPSELEEARK(N)
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(R)TLESYPK(E)
(R)VAAEDLYSSEKYEDSISR(S)

(K)FATSIFLKKTSGNPLAIIQLLGICQK(K)
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(R)SSAIVYSGYGmIINQVLK(D)
(K)EALELIQVSFSDPEVYKK(V)
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(R)GNLLGNITLTGIGNTLKK(I)
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(R)WVALGALEDMMFFK(T)
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(R)LGIDFVDLYLIHFPVTSK(R)
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(K)TTAESMVLR(F)
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(K)LIHSLFAKPER(S)
(K)TYTIQSGGK(R)
(R)NPVELMEFLSK(E)
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(K)VEGWMNPR(C)
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(K)NAYILSENGVYSGISVTSLEKTGK(K)
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(K)QTIELPAQIQPGMHKDAIAIAVGYGR(T)
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(R)YNPPPGAR(Q)
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(R)YSPEILHDALVELETTYKK(L)
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(K)FGENITIAR(F)
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(K)GIHASFPFHEESGEVR(F)
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(K)ISIMLEELGIPYTVHPINLDKLEQK(Q)
(K)RPAFIK(G)
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(R)YIVKDPSLNR(I)
(K)DLGLWTPHLPK(S)
(R)TTLFLVPTNTPGYTMVR(E)
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(R)ATASASAVFAIAGTR(S)
(K)FSIHPYK(G)
(K)GLVLGK(V)
(K)ILLYDPIR(D)
(K)LIDTIGPPGNKR(H)
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(K)VLEMDKNIALVEmAIPVYK(D)
(R)YLVISDFLDHQIR(V)
(K)IPLNHFIR(W)
(K)LLVELK(E)
(K)VTESMIEK(L)
(R)DSLFK(Y)
(R)TNPGFSMK(I)
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(R)LDYFGWR(K)
(R)QLSIWALGR(K)
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(R)EWGHTHLDEILNNLSSFK(N)
(R)FHPFLP(-)
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(K)MGILHNFLR(F)
(K)TAELVYKGTVLGK(S)
(K)YFVSSSVK(T)
(R)FIFQFVDK(M)
(R)GLAYSSGSSTHFEK(D)
(R)IVLLTGDLQK(E)
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(K)KYFVPENR(T)
(K)LADVLSLYQLLYGDWR(E)
(K)YFVPENR(T)
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(R)KFVISNEDNYIYSK(N)
(R)LEIWAK(L)
(R)TFQMENGLNVLMMK(R)
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(R)ALNLLIAEK(G)
(K)KKDDLQEVHLLK(N)
(K)LESVIDVLVSK(M)
(K)SKIEPATGGTVR(M)
(K)GFQEELEKDR(Q)
(K)GNITHLFYNPK(S)
(K)ILILSFIPGPDEIR(E)
(K)ILILSFIPGPDEIREK(L)
(K)IWVTVYTDDEAEKIWLSK(G)
(K)TLELGLEK(I)
(R)EIFLNYFK(D)
(R)EKNLLVILGSR(N)
(R)TGEIGYFFIK(K)
(R)TLLGDHVLQK(G)
(R)VALLLQEVDSVYDTNELRK(I)
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(K)IFSGAEHNLQAQKPVKLDI(-)
(K)VIYEAVK(G)
(K)FTIDPNTVNSGNNDRDAK(I)
(K)GIIGLTLNGVTK(K)
(K)LWPEVELTISTK(L)
(K)TGVGGSFDK(I)
(K)TGVGGSFDKIEVVGTTTGNFENTFK(G)
(K)TNLNLGDFK(A)
(K)VISVELSSDK(T)
(K)VISVELSSDKTSGK(G)

(K)AFSHYR(W)
(K)LAAEFIEAQK(G)
(R)EALENAKPQVEVK(S)
(R)KITPDPVYNDVQVAK(F)
(R)LALGIR(W)
(R)RLALGIR(W)
(R)VGGVTTYQVPVEVRPER(R)
(R)LTTGIEVTAYIPGEGHNLQEHNVVLIR(G)
(K)ASLNTESFFSAASFQETTK(V)
(K)DKGGFNPVFIMAASGAR(G)
(K)EHPVMLNR(A)
(K)ENVIIIGHMIPAGTGTK(K)
(K)FVAGIGADAIAK(E)
(K)FVAGIGADAIAKELLAR(I)
(K)GGFNPVFImAASGAR(G)
(K)GGFNPVFImAASGAR(G)
(K)GVTALQVYLVQEVQEVYR(L)
(K)KMALELFKPFIMK(R)
(K)KPETINYR(T)
(K)KVEAEDKEVFDVLEYVVK(E)
(K)MALELFKPFIMK(R)
(K)RGDQIDGDNLDPHDILR(V)
(K)RLEVLEAFR(D)
(K)RMLQEAVDALFDNSR(R)
(K)SVLYFEK(Y)
(K)TGTIVNVK(V)
(K)TVLMLDDIKK(L)
(K)VEAEDKEVFDVLEYVVK(E)
(K)VIEIWTK(T)
(K)VKVTPIGK(Q)
(K)VLTDAAIK(G)
(K)VSYTGIVNNINGR(L)
(K)VTPIGK(Q)
(K)YHEMGLPK(K)
(K)YKDIAVFK(S)
(R)EEYSVPVDAIISVQDGDVK(A)
(R)EGLSVLEFFISTHGAR(K)
(R)FRQNLLGK(R)
(R)GLMAKPSGEIILAIR(S)
(R)IAVISGGSR(E)
(R)IAVISGGSREEYSVPVDAIISVQDGD(V)
(R)IKEWSYGEVK(K)
(R)ILGEEAVIPVK(T)
(R)KVLITDSGDTSFVNQQQIDR(L)
(R)LGIQAFLPVLVEGK(A)
(R)LIFNTILPEGYAYVNRPLSDK(E)
(R)LIFNTILPEGYAYVNRPLSDKETNR(I)
(R)LIPAEIGEAVGTIAAQSIGQPGTQLTMR(T)

(R)LIQQYKTEELSNLR(V)
(R)LVFNEENKR(V)
(R)mGHIELAAPVSHIWYYR(S)
(R)mGHIELAAPVSHIWYYR(S)
(R)MGLLLDMTVNQLK(S)
(R)MLQEAVDALFDNSR(R)
(R)MLQEAVDALFDNSRR(K)
(R)NTLITR(E)
(R)RGSIVIQR(L)
(R)SHNDFESITIR(L)
(R)SVIVVGPELK(Y)
(R)TFHIGGAASAK(V)
(R)TSNILLK(V)
(R)VKGV TALQVYLVQEVQEVYR(L)
(R)YATL FAPTISIEDIR(V)
(K)EKIEVTGENGELKEYVLQIGSK(Q)
(K)FEFNNPK(E)
(K)FHSLMR(Q)
(K)FPATLLVK(S)
(K)GIHSIKPGIPESFNVLVQELR(G)
(K)GKDNPILINALEKDG VNDYEDAILK(F)
(K)HDGVVTSVDAENIVVER(K)
(K)IEVTGENGELKEYVLQIGSK(Q)
(K)ITNLDYLPNLIQIQK(R)
(K)KFPATLLVK(S)
(K)LGPEQITR(D)
(K)LLHSIFGEK(A)
(K)RGSTLAGQVVVG EK(L)
(K)SLGHGTNEEVLR(L)
(K)VKEVELIEFPK(G)
(R)ALMGSNMQR(Q)
(R)DDVFSSIHIEEFEIQR(E)
(R)DVHYSHYGR(M)
(R)ETFP IESPNNDMIMEYSHYILGEPK(R)
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(R)GSTLAGQVVVG EKLD E MG N I LVK(G)
(R)GSWLEFEMDNK(G)
(R)HQGLEAVFR(E)
(R)HRGDFPFR(N)
(R)IGAEVKPGDILVGMVTPK(G)
(R)IVRDDVFSSIHIEEFEIQR(E)
(R)LFFSPK(T)
(R)LNALGPGGLSR(D)
(R)MNLGQIFETQLGFAASK(L)
(R)MNLGQIFETQLGFAASK(L)
(R)NVLA AFMPWEGYNFEDAILISER(I)
(R)RLNALGPGGLSR(D)
(R)RTINDIINMETGEVMLEAGSK(I)

(R)SFDWFLQADV(K)(D)
(R)SFDWFLQADV(K)DETK(R)
(R)SFDWFLQADV(K)DETKR(R)
(R)SPGIFFSYD_mER(D)
(R)SPGIFFSYD_mER(D)
(R)STGPYSLVTQQPLGGK(A)
(R)SVGELISNQLK(T)
(R)TINDIINMETGEVMLEAGSK(I)
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(R)VVVSQLHR(S)
(R)YILNLFSETENYYPDDIDHLGNR(R)
(R)YILNLFSETENYYPDDIDHLGNRR(I)
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(K)KFEGAGAQIELK(A)
(K)KIEVIK(L)
(K)KKFEGAGAQIELK(A)
(K)LTLVEAADLVK(K)
(R)EITGLGLADAKGLVEAGGK(A)
(K)DKNITFGSEYQGPLAAIFAK(D)
(K)IEAVALLK(G)
(K)NITFGSEYQGPLAAIFAK(D)
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(R)AIQATAEK(N)
(R)EQLLAQIAGGINGPAR(T)
(R)TIASGINQIIASLAR(A)
(K)FFSIDK(A)
(K)FFSIDKAVELAK(S)
(K)GGVVHLGVGK(V)
(K)LIENIR(T)
(K)SLQNIR(G)
(K)TFSISPTMGVGVK(V)
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(K)AIGLETGSATPHTHK(V)
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(K)IIDGPFANFTGLVDEIFPDKGR(L)
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(K)WYALQTYSGHENK(V)
(R)FLIQSLPSVSTFVGSK(D)
(R)VKVEIFGR(S)
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(K)TVAFLIPVIHNILTK(G)

(R)LIDMIK(S)
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(R)LVLGDVLSYVGK(K)
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(K)TGFNVVGVSK(D)
(R)EFMGIVR(T)
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(R)AGDSIEYELPGTLDEILPFLK(L)
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(K)GISENITVLSIVGR(F)
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(K)STFISLIDK(E)
(R)FFPLEEIIK(L)
(R)FLRPDGHYVK(K)
(R)IEVLFPIIESK(N)
(R)ISSEDPKVLGIK(M)
(R)RIEVLFPPIIESK(N)
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(K)LPIDLIYTR(A)
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(R)NWTQPDVVR(G)
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(R)SGAMAGFSPVMK(S)
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(R)KNLYQIDI(-)
(R)LIFTPPDVLASQVK(L)
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(R)GPEVVAGITK(L)
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(R)RLEGIWHL(-)
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(K)GTLGAAVSVAK(E)
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(R)SILLITHYQR(M)
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(R)IHTSYNQTIATGR(L)
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(K)ISILGSLAFSEK(I)
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(R)IGLIGAGTVGSGVIEILKK(E)
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(K)IVIGGLNHFLENVIR(L)
(K)TQSSIIPNLLEAMTANK(E)
(R)IGFAEPLVGLPITSALIIR(M)
(R)IPASVTVETK(R)
(R)IPASVTVETKR(A)
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(K)LAFISASPR(Y)
(K)NADKDIFIPIVSWLDR(N)
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(K)TVIQLQGEIHPK(T)
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(R)IANLVTIGSSGILDSPSASIK(S)
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(K)TVLETVGDLAGNILSPHVADLDREGLK(F)
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(-)MISTSGLTNFGK(K)
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(K)ILFENVTVK(F)
(K)SYDRPIFK(D)
(K)TIHWLEEFNTYR(G)
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(R)LIIGR(M)
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(R)GMNVYTTLDYDKQEAAEK(S)
(R)IAFAQSINTIAVK(L)
(R)TDNLAEHGNIWALLSSEDR(E)
(K)FTLRPAR(V)
(K)SLVSGFLNPIDNLER(V)
(R)SAQEFVSIRK(E)
(R)VGATQTNSEELKPFVDGVTMILK(E)
(K)ASDINEVILVGGIR(I)

(K)AVITVPAYFNDEQR(Q)
(K)GETLIGQFAK(N)
(K)HLDMTLTR(A)
(K)IELSGTMSTQINLPFITADASGPK(H)
(K)IRIESSSGLSEDEIQK(M)
(K)NQAITNAVNTIR(S)
(K)NQTGIDISADKNTVQR(L)
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(R)DAGLKASDINEVILVGG SIR(I)
(R)IAGLEVER(I)
(R)IINEPTAAALAYGF DK(K)
(R)IINEPTAAALAYGF DKK(N)
(R)IPAVQELVK(Q)
(R)NTTIPTK(K)
(R)SGNEGVK FETSAGEFTPQEISAR(V)
(R)TTPSIVAFTAK(G)
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(R)SYDILGVSKSAND E EIK(S)
(R)TINIK(I)
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(K)HVLVEKPIAETTNQAK(E)
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(K)NLVLLVGHVER(F)
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(R)FNGAVLELSK(I)
(R)NSDVSTLEIAYQILSEIHGTSNK(-)
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(K)FHV FQGYSGWGAGQLETEMNRK(S)
(K)ILISNSSIVMDYFNR(T)
(K)ISQPGIEIIPGLYLAR(S)
(K)SWVIHEASK(D)
(R)SFDTLLELLK(S)
(K)LIVAPVIGAR(L)
(R)EYFLSYR(N)
(R)RPNLFVLDIR(A)
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(K)TISVEITQQLGWK(V)
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(R)IVLAQAEHANPLYLSYLK(N)
(R)LTESLGLGSFYVK(Q)
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(K)KKGAEELLAK(L)
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(K)LAPIQGK(L)
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(K)AVHFYEQGLGFPK(M)
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(K)SRLPADRPYSSSLQISFDK(Q)
(R)ANNILYTEVFFAPSK(F)
(R)HPEVIGIGLGGAELMGPARG(D)
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(R)KEQNHPVR(Y)
(R)LPADRPYSSSLQISFDK(Q)
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(K)LANQIIFHEINQ GK(G)
(R)IFEVGISYYGR(T)
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(K)MVSNIQEIK(A)
(K)VVSLVNNVNSTIAR(E)
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(K)IFYNQANLSALK(I)
(K)MVNAVSTSI VPK(Y)
(K)YYGTTLVTGFAK(I)
(R)DILGITVYANHSQK(L)
(R)ISVMGGEQAANVLLTVK(M)
(R)NIVSTFHHAGNVTQR(G)
(K)IFITPLEDVIR(I)
(K)LIVAIQPHKLEEVK(S)
(R)LEIAVNDEFVKPTVDAILK(A)
(K)ILTAIPSFAL EEQK(A)
(K)KGKPEYIEK(I)
(K)RPIQVSPELISY LK(E)
(-)MNYWLFK(T)

(R)ANPLSVVGIAEVVKPGYPDHFADFDPCHK(Y)
(K)ALLAKETISHDELMTIVHPANEEGTK(K)
(K)EELVEIIEFLKDPK(K)
(K)ETISHDELMTIVHPANEEGTK(K)
(K)EVIAYHEAGHAILGTLLPYTEPVHK(V)
(K)IQIEK(D)
(K)IQIEKDVIEGYYPSEYADSK(T)
(K)SFFISEK(E)
(K)VMMGPER(K)
(K)VPMTSDISLHSIAR(G)
(R)ADVLDPALLRPGR(F)
(R)ALGLTQSLPKEDK(H)
(R)GTPGFTGADLANLINEGALLAAR(K)
(R)IPTGVLLVGPPGTGK(T)
(R)TTVAPLDK(D)
(R)TTVAPLDKDLISLR(R)
(K)ILDVIANNINVEIK(T)
(K)LIVGLGNPGDR(Y)
(R)IGIQNDGFNLK(N)
(R)SISLGDIDDVIEKYHL(-)
(R)SPNFIR(I)
(K)IGIETTGIK(G)
(K)TGGQFEHIIHEIR(V)
(K)TIPEDLLENLTIDVTDLDVGDSIK(I)
(K)VPTSWEILINGDPIVTSVKN(T)
(R)SSGMVPVNIIGGGVATSGAVNEK(E)
(R)SSGMVPVNIIGGGVATSGAVNEKELEK(M)
(K)ANVSEVMNVIGEIEGK(N)
(K)SLSVAPLFANAIQR(I)
(R)ASVSSISVVIPYYGYGR(Q)
(R)IHTNQSVSTLFD(-)
(R)ILTMDLHADQIQGFFR(V)
(R)INSTQFSEVVLANTIAIPESK(K)
(K)ENEFSATILSAVVEKPTGYGR(I)
(K)LKNHLESHGVNSPEDLQMLSALIK(G)
(K)NHLESHGVNSPEDLQMLSALIK(G)
(K)QHKENEFSATILSAVVEKPTGYGR(I)
(K)VAVELNGKPLLLHVLHDLK(G)
(K)VAVVLAAGK(G)
(R)NSSGEVTAIVEEKDSSTEEK(L)
(K)SGNLNLNAVGVWSK(K)
(R)FVPEFHR(K)
(R)FGSPNIEDFAVSIFK(L)
(K)DKIPADQNSSGALIGFYINQLK(I)
(K)IPADQNSSGALIGFYINQLK(I)
(K)SPELTSVK(L)
(R)YYFTVYALK(D)
(K)AVFLMVYK(Q)

(K)DVDNVGGGQRPFTLTVSGQK(R)
(K)EHMIPASVVSNR(L)
(K)IGYSGQAESFK(E)
(K)IVSMFNTNR(S)
(K)MNTTQFK(A)
(K)MSQIALQVDQK(I)
(K)NSILLVDFTNQLLSQGK(E)
(K)QSGSNTVAVAQSVK(K)
(K)VGNHAHNSSESPEITTK(A)
(K)YAEQQVR(D)
(R)DLKENFYSSFPNPNR(L)
(R)EKEVLLGVPGTIIGTEL(R)
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(R)LIPIQNVAK(A)
(R)LNRNKAVEIYADVNP(K)
(R)RIDPADQPPIVIAL(R)
(R)TGAPEFR(V)
(R)TINEFQSPPEIRDTPISLFGNEVPIK(I)
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(K)VLPVSNPPTEK(Q)
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(K)IFLVDDHAILR(E)
(K)KLDLHK(V)
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(R)TIILSR(H)
(K)FSGSAANQVMGYHGTIGYNFHHSGSK(Y)
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(K)YIMPVFK(G)
(R)IQYNVFGGLIK(K)
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(R)LENAINSQFLR(V)
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(K)SVQNLAEGK(I)
(R)TTGGTFFSTAPIGAALIK(I)
(K)EHNTYLIAPLR(E)
(R)GVNMGHDVHYSQTVGAAR(H)
(R)SATSMALSIYDSMR(V)
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(R)AVLEATLPFFK(K)

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(R)LIFEFR(T)
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(R)FELGVK(S)
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(K)LIAQRSSKMK(E)
(R)GFAVVAQEVS(L)
(K)IGLEIHLDK(T)
(K)KLLSELIHVLGNGDDLSLK(N)
(K)LIAFLPR(H)
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(R)GLIDLIK(G)
(R)LGFQK(R)
(R)LVLLELER(V)
(R)SVTEEVVGHFER(A)
(K)IIDSGFVHVYSTDR(E)
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(K)VSPLNPNAR(G)
(K)TLNDIFLSMTGR(G)
(R)NNPLGIVYAEQNHQFASNSNR(F)
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(K)GWSFSELGFGK(N)
(R)TEVGVNYVFIR(T)
(R)NPASLEIVTLLK(E)
(R)SYSGTVSTGK(I)
(R)ILIVDFNPVFR(Q)
(R)YSPITTPENIEK(E)
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(K)AENFAGLILPGGHAPGMK(E)
(K)SQEMAAWNLTR(L)
(R)LWLGSYYR(T)
(K)EYKPLIPEQELLGIGINEIK(E)
(R)GLTAHQQALQTTGHNISNADNK(H)
(K)LPDSFLFHISESLVK(G)
(R)MDGVFWTYYDNL RPR(Y)
(R)NSNIQIQLSLPEDFYFHNPK(N)
(K)NFSEILSNMGSFR(E)
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(R)VVFTPGTGVTVNK(D)
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(K)KLELPYR(V)
(K)MLSHAENILK(K)
(K)THFEIGEALHWIDFEK(G)
(R)ALMNFMLDVHTK(E)
(R)YMEISSVS NFR(D)
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(K)TEVIGFVGK(T)
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(R)SESYIGVLIDDLVHK(G)
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(R)FIFIVNNLDK(L)
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(R)LLSEFFNSDELEYQEIRK(F)
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(K)LIQPIFIVEGLK(E)
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(R)DKEEGADFLMVKPGMTSIDLIGPIR(E)
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(R)FIYKDFMLDFQGFQIK(R)
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(K)LGYTSVNFDLIYGLPK(Q)
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(K)FIDNLKS(-)
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(R)TSIPAVNHIR(R)
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(R)GIRPAAGYPASPDHTEKR(A)
(R)HFLNLIAGEPDIAK(V)
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(R)VNVNVNQLLHPDLHEAYSQK(V)
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(R)MYGDQFHSSPYANPEGVHVSR(S)
(K)ERPDAFAYILNLIPSGSR(V)
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(K)FDQGHLGILFHMPTVR(E)
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(K)HASEDMVEWFPASVK(E)
(R)KFGINS DHSMFDAIILDSSLIK(N)
(R)LKHASEDMVEWFPASVK(E)
(K)SVYQLALQDPR(V)
(R)LIANGGGIVYAPLGPTH LAVEDIAILR(A)
(K)GFAMAEGNPQWHHK(N)
(K)GFFPLDVLK(T)
(K)HSLSNLAVIIDYNK(L)
(K)SFGFAIEEVDGHNK(E)
(K)TFGKPDSILGGHPER(G)
(K)TKPTAIIAHTIK(G)
(R)GHIGPALSLIEILR(V)
(R)KLIVEMMESEKR(G)
(K)EFLILSPSDFGFHNMLK(N)
(K)GMFAIFGDFLEK(K)
(K)IGLIPENWFGTK(L)
(K)SFLEMDLIPFK(D)
(K)TGFIQNVYFHDTK(E)
(-)MINIPYINLVEQWK(N)
(K)AIMPVHLTGR(V)
(R)IADKYSIPVIEDAAQSIGSK(Y)
(R)ILTLPIHQYLK(D)
(R)MDAIQAAILNFR(L)
(R)NTVGEFGFVTR(M)
(K)AGTWGNTGAFSLHPLK(N)
(K)AIVPVHFTGYMTDMR(K)
(K)NLNVWSDGGVIVTDDEELAK(N)
(K)VHYPIPIYR(Q)

(K)YAIGVNSGTDAIK(L)
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(R)IENANYDQHLR(S)
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(R)LDTIQAVVGNWLIPNAVAISNKR(I)
(R)SISQITLPPRPK(D)
(R)LDVVVNILTNLAYHKR(E)
(R)VLGLPLVEIK(V)
(K)EHLVLLGIKPNRPEIGYGYIEAGK(S)
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(K)VAIIMGSHSDWETMKEAEILK(E)
(K)ILYNGLARNK(W)
(K)SMHPNGAFFYSDEQEIPLFDR(W)
(K)IGESDRKEFEEAISEFIIHR(S)
(K)AQLVFISFHGGAEGGPALHVK(N)
(R)SFLFGK(V)
(K)IVEVFGELFQK(G)
(R)HDQMASATTGGQVGNSVYIVGATTGR(D)
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(R)HIGEEESFFHSILQSEYDTAR(N)
(K)KPYLSLYFQRPVDPSR(N)
(K)KPILGLALTLTTHYPYR(T)
(R)MIEDLKEHGTAERDPIQDGK(Q)
(R)AVVVNDQIVIRPMMYLALSVDHR(I)
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(K)LKGAELSDLK(K)
(K)LFQFALDTLPEHEPAFVMSVHK(S)
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(K)IAQGAKPGEGGQLPGKK(N)
(K)LTSSDLSEGILKDFEANKNYFVK(V)
(R)APIMELAVAAVHNHLIR(S)
(-)MMQEPSQIVHR(K)
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(K)REAKPPEHEILIS(R)
(R)EAKPPEHEILIS(I)
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(R)KLDPQIQNELKDLVLDLQ(Q)
(-)MNSSILTGIFGGSFDPPEHGHSEILK(S)
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(R)LAVDGENSEGA AVQSNDRR(L)
(R)LHSNSQEIAFFPD TFR(F)
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(R)NTGLIGYGEK(F)
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(K)QVLSDVLR(A)
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(R)FFLAATLPEGK(D)
(R)FILMNLEESFVPIGITPDIEK(D)
(R)GGAVIEPYLSTQW FVK(I)
(R)QIPLL FDSFVDKEFGSGLVK(I)
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(K)GISFFK(F)
(K)TVALLIITANR(G)
(K)VLESLLPLVVK(T)
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(R)GPETNQSGEFLHFLDPSGNVLEISYKD(-)
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(R)NFPEIANR(F)
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(K)VIALLK(K)
(R)IRPIIDK(K)
(R)IRPIIDKK(E)
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(R)VAGLLSLK(S)
(R)YNVENQVLIGK(E)
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(K)MYAQVVRPER(Y)
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(R)KIPILLDYSVMVK(N)
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(R)IISLNSEILLEK(N)
(R)VLLYFNPNDR(E)
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(R)GPLPNVLYAGIMQYDGDCLKPER(F)
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(K)KYLIGIGTR(T)
(K)TTDKFIYAVYK(D)
(K)VWTNSDIKR(R)
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(K)YLIGIGTR(T)
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(K)ANLATYYFSTGDFEKS(L)
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(K)DVNTGNEPVSKPTGVR(M)
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(K)ELLQEGYEEIVGETPSFKK(A)
(K)FLGTIR(N)
(K)GQSWGAKANLATYYFSTGDFEK(S)
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(K)KAVVSSPAK(I)
(K)KSLWEAIFGEGSSFIDQMPSK(V)
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(K)LYEEAMK(L)KDADK(S)
(K)RADAINESLSTGITK(N)
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ζ)VAGFAASMATGKDVNTGNEPVSKPTGVR(M)
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(K)VFEAFDKESYYK(L)TDLSK(R)
(K)VFVKDEDEEVK(E)
(R)ADAINESLSTGITKNR(A)
(R)KRVEATFAVDESNAK(-)
(R)LSPIVK(T)
(R)MMLIPLDATLIK(V)
(R)MMLIPLDATLIKVETGEVK(K)
(R)MMLIPLDATLIKVETGEVK(K)
(R)MMLIPLDATLIKVETGEVKK(A)
(R)NVGLAVEAPK(K)
(R)NVGLAVEAPKK(S)
(R)VEATFAVDESNAK(-)
(-)MKTLEEVAK(A)
(K)VAADTDADVILFNGVHFMAETAK(L)
(K)VLIADLK(A)

(R)MLDLSFKK(-)
(R)YLAANVQNLTQK(K)
(K)AEIPAMISAYK(S)
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(-)MNQLLTLLQPETVIFNLESGSK(E)
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(K)NLNILLSSGTGNLHVYPGIGGWK(E)
(K)QLNYVQDLNGSFFIANMKPAIEK(V)
(K)TFFENSIHK(D)
(K)TFFENSIHKDNK(N)
(K)VAGLTSYFK(T)
(K)ILPYEQGQIK(D)
(K)LESVVFWSR(K)
(K)MRPQYEEISILK(N)
(R)TNLLEIIR(R)
(R)AVEEILFESAMAMEDKETNSAK(I)
(K)AVLSMK(E)
K)LASQTSTSVQEIGSLVNSTNTAVLNGNTK(V)
(K)VAEAFNILK(K)
(R)FIPYVFQSGEK(G)
(R)TNLLALNAAIEAAR(A)
(R)EVVPFKNENELHRLEK(L)
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(K)ILAIETRPLSK(E)
(K)TVVILVETR(K)
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(K)ATLDALEQLETPILAAKK(R)
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(R)RFSFNALSVVGDQR(G)
(R)SIVEKAGIQDVLTK(S)
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(K)LILEWSSK(I)
(K)IALVFGSEQYGLSTYAR(N)
(K)NLKPILVIEGVEKPGNLGTILR(T)
(K)LAYSGFNDFLK(E)
(K)SIAILEELYPK(S)
(K)GTEMAFTGALYK(N)
(K)YESGSGWPSFYQPVK(D)
(-)MQNVLLQPEK(G)
(K)ELILLNELLWLK(G)
(K)GIFLDSVTSTNTVIK(G)
(K)LVPFLNESILLWK(D)
(K)TILSVYPELTR(E)
(K)LFLFGVPASK(R)

(R)YLIVQDK(W)
(K)FTSDYTIFDPLHGLTWK(A)
(K)EFYGNSLK(E)
(K)IIEVFVK(E)
(K)IVmTAAAK(H)
(K)LIWVK(V)
(K)LPNSNQPPSVNK(A)
(K)SQIIEPR(G)
(K)TPMTLFGSK(S)
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(R)IGDPISLAQVYGVATFYTLNKKPVGK(Y)
(K)GLGPAMSALILGLTPGDR(S)
(R)ATLINVNIPK(N)
(R)LVFR(S)
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(K)AAEVPILVAINKIDLPAANPEK(I)
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(K)TIKETLQGSADAGKR(K)
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(K)VTLENMNEFIK(Q)
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(K)VVGVSQVSVPKETLLENVQVGELAK(K)
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(R)GLITFLDTPGHEAFTSmR(A)
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(R)IGNAGAATGTSSK(V)
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(R)TGPSRPNSGGGYQGNR(G)
(-)MQEPSQIVHR(K)
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(K)GAVLSDFLSVLESK(R)
(R)SFLFGK(F)
(R)LINSSTELNRLGSGVLK(Y)

(R)ILNDLLQSAGQLADHYENNNK(K)
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(K)VNFNIDLLR(Y)
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(K)FVVLEK(A)
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(R)EYKQSDWVISPSSELKDESFLLVK(G)
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(R)VLAFIETNLDKYK(D)
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(R)LPEHGSFIPFTWG(-)
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(R)SYLDIR(A)
(R)DPLKFPDFIHSQK(R)
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(R)ALGVSPSYLSK(I)
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(-)MIQNILR(V)

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(R)NPLVEYK(L)
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(K)TVNGVPVYVR(D)
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(R)MIQFLSTHPLNDER(I)
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(R)TITQVIPIENVKPEELEPILKR(L)
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(K)KGQFLAPADTR(H)
(K)YNVPVLTDIHETSQISPLK(D)
(R)EFIPSILR(S)
(R)GTSFGYGNLIFDGR(A)
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(R)IKELE NVNKK(L)
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(K)IHQLIDDAVKR(T)
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(K)NIQIIQSVAK(D)
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(R)KLDFQILEMALE(-)
(R)SQGIAQSNHLQFTSSNLNEILNR(G)
(R)SVTINFR(K)
(K)ERPDLVVYTLEPSEGDYK(E)
(R)SVLVVGVSETSK(R)
(R)DKPFSDHAPLEFEIKL(-)
(R)YLYPDKQEYSWWTFR(A)
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(K)TKLEAYSELSEALK(D)
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(K)SLLAFK(T)
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(R)ITESIWNILR(T)
(R)KSATNLMELIADSDKFPDLLEK(A)
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(K)LNAILFEFR(E)
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(R)LFGLLASSR(L)
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(K)FLRPDAK(S)
(K)HLAGLR(H)
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(K)SQVTVEYK(D)
(K)SQVTVEYKDGPVR(I)
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(R)IMYWNR(F)
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(R)LVGYLYPIVEPYK(Q)
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(-)MFLPHLR(Q)
(K)HLGLNYTK(D)
(K)TPGWFYSQSYTDVR(G)
(K)DFSSLLNWLR(Q)
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(K)VISNVLLTPETGTGK(R)
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(R)EPQINLFKK(S)
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(R)LYSIASPSYSFGMKEDNIEFIK(R)
(R)LYSIASPSYSFGMKEDNIEFIKR(D)
(R)MYISHR(V)
(R)VREQAEAVKK(I)
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(K)TMVSSWR(R)
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(R)HWLTPVY(-)
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(K)SFLETK(G)
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(K)KIGATVLVEK(G)

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(R)VSGYIHEAVEK(G)
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(R)AFQEFMAK(K)
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(K)TQHIVSGFFGK(K)

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(K)ALTWLEK(V)
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(K)VTIIPR(G)
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(R)HVDFYK(V)
(K)TNIQNAIQNEK(S)
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(R)LCQYDGEIPLYEEDESPFDRL(L)
(K)ANSSEMQTL SIRPR(L)
(K)TDLVISNAGGKPVR(C)
(K)AINHLDEIK(N)
(K)DSPEYKHIVNLVNKDEVISVRP(-)
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(R)SYYETTR(T)
(R)YYTLAEK(E)
(K)EFL LAK(I)
(K)GEVLIR(M)
(K)VINIVR(K)
(K)LDSNTML LALGDVSGHGLGTGYLVSAIR(G)
(K)TVSSSVGGDFLGTAAYYEKEAK(G)
(K)SGYEFVK(G)
(K)SNSIGSGNER(L)
(R)NVILGMVLK(T)
(K)YLSSFPGVNVDK(I)
(R)GNTFLVSTSTER(E)
(K)VIMIEEGGYHTGTFDNHELN MAGK(V)
(R)NIPSAFGVEEFR(L)
(K)GEWYLLGK(F)
(K)LTEFMII EEELQNK(W)
(K)LSPLLK(K)
(K)TNMQELIEK(A)
(K)YEIVHEELEDVPAK(L)
(R)ALGSADLNKDNVVTAL EAFK(S)
(K)AQTLLEVIAEISDHSK(G)
(K)SVAEAAVVGFP HDIK(G)
(R)TGNESGLTWK(D)
(R)EAFVMIK(K)
(R)IAQGLLEGIER(E)
(R)HLEPGTISPVDSK(Y)

Appendix 3: Conserved proteins present in three serovars of *Leptospira interrogans*.

Accession Number	Protein identification	Protein Length (Amino Acids)	Canicola		Pomona		Copenhageni	
			Mean No. of peptides	Mean % Coverage	Mean No. of peptides	Mean % Coverage	Mean No. of peptides	Mean % Coverage
P61442	Hypothetical protein LIC10524	646	26	23	20	34	NA	NA
Q72M74	ABC transporter, ATP- binding protein	309	5	18	6	21	NA	NA
Q72MM7	Hypothetical protein LIC13166	306	18	32	11	37	NA	NA
Q72MR9	Hypothetical protein LIC13123	291	5	17	14	45	NA	NA
Q72MY9	Hypothetical protein LIC13050	366	3	8	11	34	NA	NA
Q72N71	LipL41	355	56	46	8	29	NA	NA
Q72NF9	Elongation factor Tu	401	121	52	16	48	NA	NA
Q72NN7	Acetyl-coa acetyltransferase	441	27	32	9	21	NA	NA
Q72NX2	Transcription elongation factor nusa	460	9	19	8	16	NA	NA
Q72P55	Hypothetical protein LIC12621	136	7	26	9	61	NA	NA
Q72PA2	Succinyl-coa synthetase beta subunit	390	17	23	9	26	NA	NA
Q72PL6	Response regulator	120	10	36	7	47	NA	NA
Q72PR0	Putative glutamine synthetase protein	473	22	25	6	9	NA	NA
Q72PY9	Hypothetical protein LIC12326	123	4	19	6	31	NA	NA

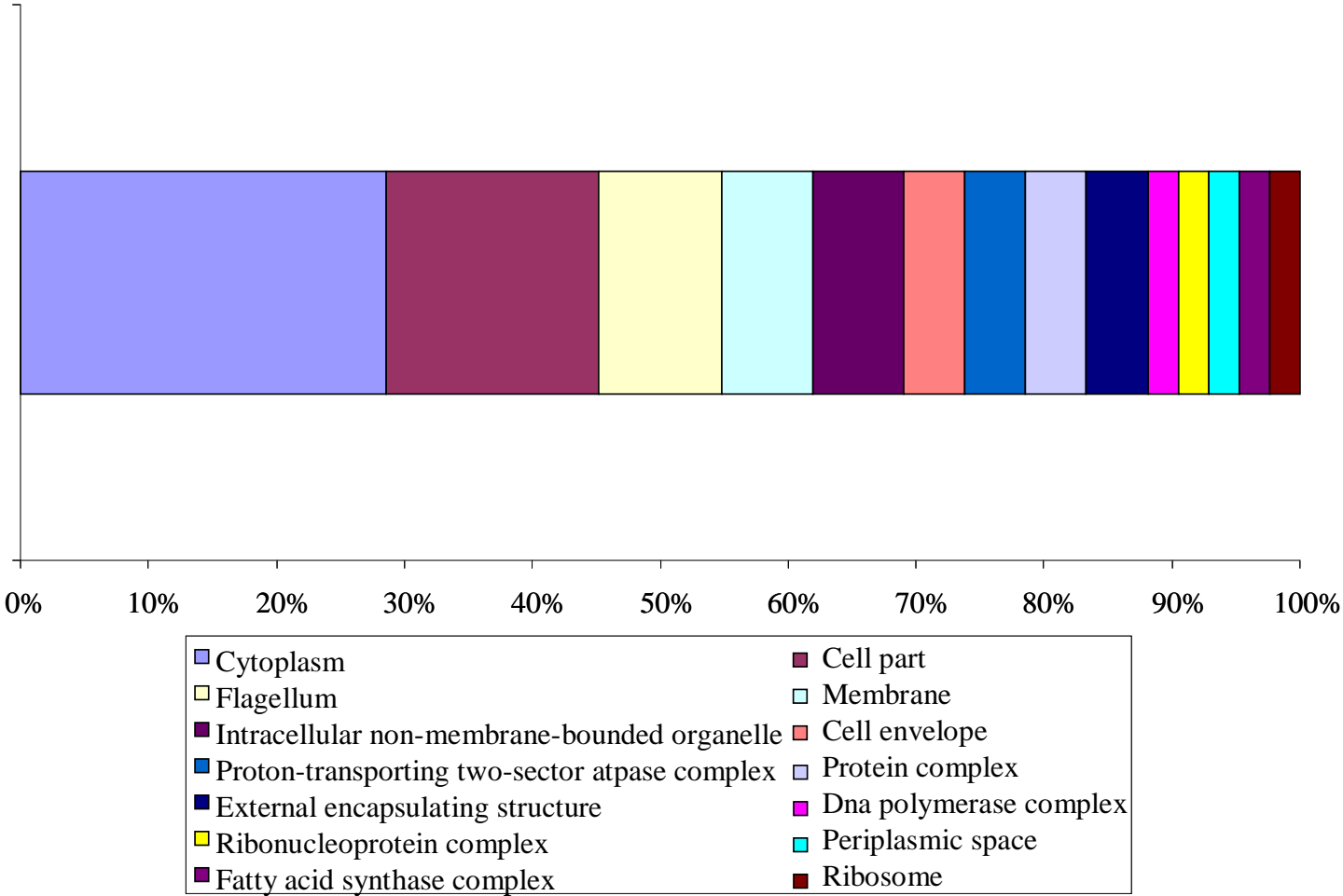
Q72Q79	Fructose-bisphosphate aldolase	351	12	20	10	35	NA	NA
Q72QN1	Cysteine synthase	309	47	40	12	34	NA	NA
Q72QS2	Hypothetical protein LIC12040	146	8	25	7	34	NA	NA
Q72QV5	Succinate dehydrogenase/fumarat e reductase iron-sulfur subunit	243	7	18	5	19	NA	NA
Q72QV6	Succinate dehydrogenase flavoprotein subunit	637	13	21	8	13	NA	NA
Q72QX3	RNA-binding protein	91	17	72	7	51	NA	NA
Q72R01	ATP-dependent Clp protease-like, proteolytic subunit	197	7	28	6	31	NA	NA
Q72R58	Flagellin protein	281	33	45	11	33	NA	NA
Q72R63	Putative lipoprotein	412	16	30	5	18	NA	NA
Q72RA0	Hypothetical protein LIC11848	276	14	28	12	46	NA	NA
Q72RC5	Isopropylmalate isomerase small subunit	206	8	33	3	11	NA	NA
Q72RG3	Hypothetical protein LIC11782	348	14	20	11	33	NA	NA
Q72RT8	Putative translaldolase	214	14	30	12	56	NA	NA
Q72RU5	LipL45	390	18	32	11	37	NA	NA
Q72S54	Flagellin protein	285	2	14	7	30	NA	NA
Q72S55	Flagellin protein	282	13	22	11	46	NA	NA

Q72S74	Putative polypeptide deformylase protein	178	6	27	9	52	NA	NA
Q72SC8	LipL31	241	9	29	7	17	NA	NA
Q72SG6	ATP-dependent Clp protease, proteolytic subunit	198	10	24	9	37	NA	NA
Q72SG7	FKBP-type peptidyl-prolyl cis-trans isomerase	451	14	22	7	16	NA	NA
Q72SM7	LipL32	272	49	49	7	28	NA	NA
Q72SR5	Bacterioferritin	178	6	20	7	47	NA	NA
Q72SW4	Hypothetical protein LIC11258	340	6	17	12	39	NA	NA
Q72SX9	F0F1 ATP synthase subunit beta	467	21	43	20	49	NA	NA
Q72SY1	F0F1 ATP synthase subunit alpha	503	25	30	22	47	NA	NA
Q72T03	Peroxioredoxin	193	8	28	8	43	NA	NA
Q72T25	Hypothetical protein LIC11196	155	8	26	9	58	NA	NA
Q72T27	Putative citrate lyase	330	15	26	11	16	NA	NA
Q72TL5	LipL71	555	13	15	11	17	NA	NA
Q72U13	Elongation factor Ts	199	7	23	6	32	NA	NA
Q72U26	Glyoxalase	141	4	19	5	29	NA	NA
Q72U74	Flagellar filament sheath protein	315	9	19	8	34	NA	NA
Q72UA9	50S ribosomal protein L7/L12	127	11	37	6	37	NA	NA

Q72UC6	Cytosol aminopeptidase protein	495	7	16	7	16	NA	NA
Q72UI5	Hypothetical protein LIC10672	229	4	11	8	27	NA	NA
Q72UQ6	Hypothetical protein LIC10601	150	13	35	9	51	NA	NA
Q72UQ7	Fatty acid synthase subunit beta	138	11	45	7	60	NA	NA
Q72V20	Hypothetical protein LIC10483	330	13	29	11	31	NA	NA
Q72V90	Hypothetical protein LIC10411	157	43	58	9	50	NA	NA
Q72VD7	Electron transport flavoprotein beta subunit	253	11	20	6	33	NA	NA
Q72VI3	Hypothetical protein LIC10314	557	23	20	4	11	NA	NA
Q72VM5	Elongation factor G Peptidoglycan	706	46	25	10	24	NA	NA
Q72VV5	associated cytoplasmic membrane protein	195	14	46	10	56	NA	NA
Q72WD5	DNA polymerase III beta subunit	373	16	24	12	31	NA	NA
Q75FE0	Response regulator	243	13	37	11	55	NA	NA
Q75FJ7	Hypothetical protein LIC20185	233	10	33	5	28	NA	NA
Total Conserved Proteins					60			

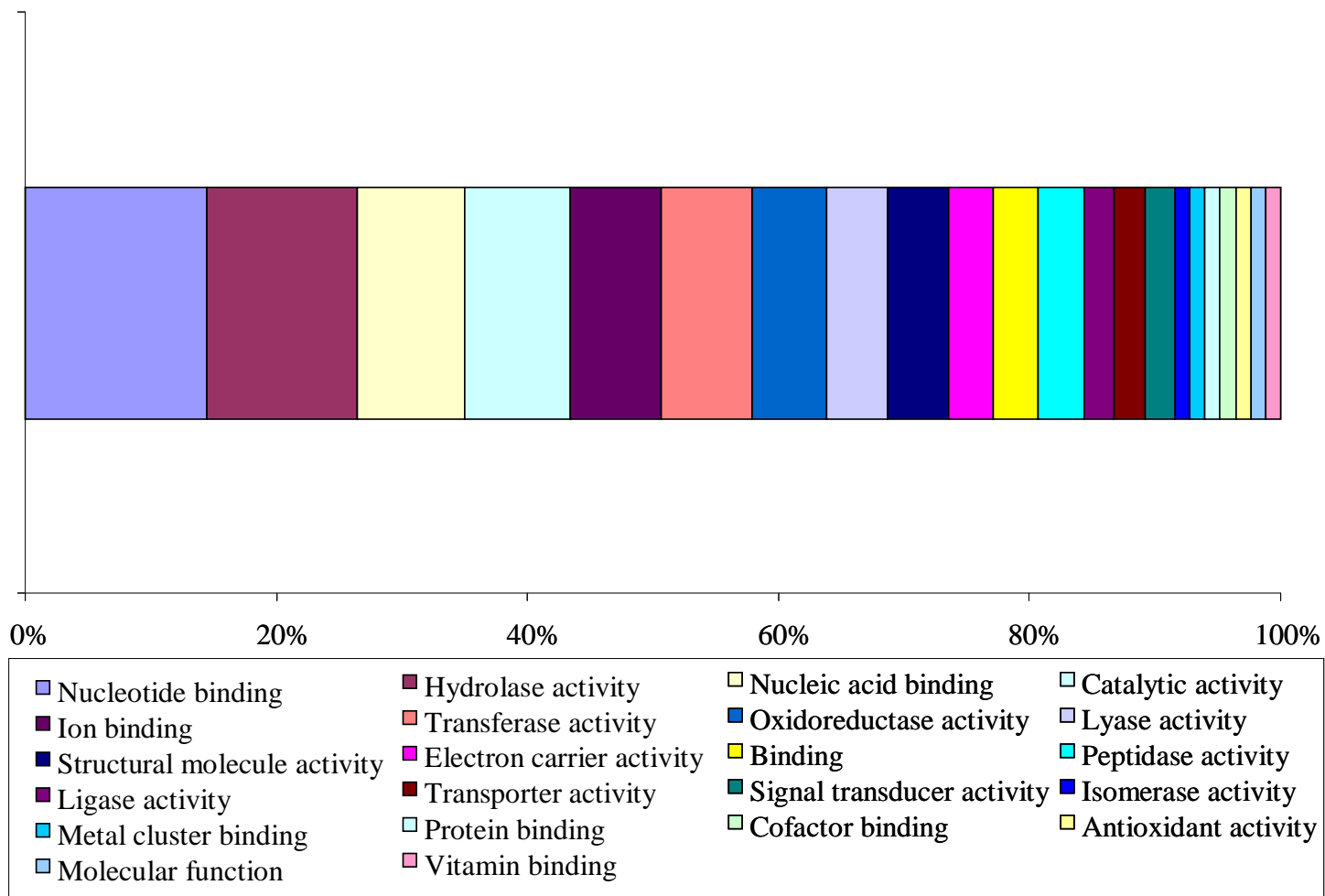
Note: NA represents not applicable due to data being unavailable

Appendix 4: Proteins conserved between three serovars of *Leptospira interrogans* grouped by their cellular content.



Note: Legend reads left to right.

Appendix 5: Proteins conserved between three serovars of *Leptospira interrogans* grouped by functional annotation.



Note: Legend reads left to right.