

0.5≤x>0.2 0.2≤x>0.1 x≤0.1
 2<x>5 5<x>10 x>10

Locus ID	Description	Gene symbol	RelAvsOG1	RelQvsOG1	RelAQvsOG1
EF0014	adenylosuccinate synthetase	purA			0.313
EF0057	metal cation ABC superfamily ATP binding cassette transporter, membrane protein				0.414
EF0071	glycoside hydrolase family protein				3.559
EF0095	lipoprotein		0.385		
EF0097	transcriptional regulator				90.264
EF0098	L-serine dehydratase, iron-sulfur-dependent, beta subunit	sdhB-1			66.038
EF0099	L-serine dehydratase, iron-sulfur-dependent, alpha subunit	sdhA-1			77.932
EF0100	seryl-tRNA synthetase	serS1			82.688
EF0105	ornithine carbamoyltransferase	arcB			3.911
EF0106	carbamate kinase	arcC1			3.974
EF0107	Crp family transcriptional regulator				4.221
EF0111	zinc-containing alcohol dehydrogenase				2.657
EF0114	EndoE family protein				25.862
EF0115	endoribonuclease L-PSP				16.862
EF0176	ABC superfamily ATP binding cassette transporter, binding protein		0.482		
EF0193	ferrichrome ABC superfamily ATP binding cassette transporter, permease protein	fhuG			0.218
EF0197	ribose-5-phosphate isomerase A	rpiA			0.497
EF0253	aldehyde dehydrogenase (NAD(+))	aldA			7.008
EF0270	protein-N(pi)-phosphohistidine--sugar phosphotransferase	bglP-2			12.469
EF0271	6-phospho-beta-glucosidase	arb			6.437
EF0291	6-phospho-beta-glucosidase	celA-3			5.522
EF0361	chitinase family 2 protein				23.421
EF0362	chitin binding protein				18.594
EF0377	ankyrin repeat-containing protein				4.299
EF0383	conserved hypothetical protein				8.377
EF0384	conserved hypothetical protein				11.941
EF0385	major facilitator family transporter				11.411
EF0386	carbamate kinase	arcC2			7.153
EF0387	sodium/dicarboxylate symporter family protein				7.675
EF0388	ureidoglycolate dehydrogenase	allD			7.532
EF0389	conserved hypothetical protein				7.405
EF0392	WxL domain surface protein				3.773
EF0405	HAD superfamily hydrolase				4.072

EF0413	mannitol-1-phosphate 5-dehydrogenase	mtlD			2.683
EF0424	2-dehydro-3-deoxygluconokinase				3.119
EF0426	gluconate 5-dehydrogenase				2.732
EF0432	keto-hydroxyglutarate-aldolase/keto-deoxy- phosphogluconate aldolase	eda-1			3.6
EF0432	AraC family transcriptional regulator				3.92
EF0435	rhamnulose-1-phosphate aldolase	rhaD			3.96
EF0436	L-rhamnose 1-epimerase				2.797
EF0439	immunity protein PlnM				14.562
EF0452	acetate--CoA ligase		0.43		
EF0455	PTS family mannose/fructose/sorbose porter component IIC				5.167
EF0456	PTS family mannose/fructose/sorbose porter component IID				4.421
EF0460	possible beta-lactamase				4.208
EF0461	PTS system, IIA component				4.825
EF0476	ferrous iron transport protein B	feoB			0.372
EF0477	conserved hypothetical protein		2.57		0.355
EF0664	C_GCAxxG_C_C family protein				18.77
EF0677	possible phosphomannomutase	algC			6.729
EF0678	acetyltransferase				4.666
EF0693	1-phosphofructokinase	fruK-1			4.979
EF0694	PTS family fructose porter component IIBC				3.532
EF0711	protein of hypothetical function DUF916 cell surface				7.063
EF0713	WxL domain surface protein				10.936
EF0714	conserved hypothetical protein				9.041
EF0743	conserved hypothetical protein				14.591
EF0755	cell wall surface anchor family protein		2.022		
EF0769	PEP phosphonmutase family protein				2.063
EF0770	thioredoxin superfamily protein			2.02	
EF0773	conserved hypothetical protein			2.647	
EF0817	PTS family mannose/fructose/sorbose porter component IID				3.431
EF0869	Cro/CI family transcriptional regulator				3.619
EF0872	KUP family potassium (K ⁺) uptake permease		0.434		
EF0918	PTS family lactose/cellobiose porter component IIC				5.591
EF1006	conserved hypothetical protein		2.125		
EF1015	conserved hypothetical protein				5.727
EF1020	possible beta-glucosidase				16.11
EF1021	GNAT family acetyltransferase				3.642
EF1026	protein of hypothetical function DUF299				2.064
EF1033	6-aminohexanoate-cyclic-dimer hydrolase				4.288
EF1035	lipoprotein				3.782

EF1036	nucleoside-diphosphate kinase	ndk	0.496		11.426
EF1066	maltose O-acetyltransferase	maa			5.132
EF1067	conserved hypothetical protein		8.601		
EF1068	aldose 1-epimerase	galM			9.371
EF1073	conserved hypothetical protein		0.42		
EF1075	acetyltransferase				2.561
EF1127	ascorbate-specific PTS system enzyme IIC	ulaA-1			6.106
EF1128	PTS family porter component IIB	sgaB			6.756
EF1131	L-ribulose-5-phosphate 4-epimerase	araD			3.171
EF1158	N4-(beta-N-acetylglucosaminy)-L-asparaginase				4.337
EF1159	protein-N(pi)-phosphohistidine--sugar phosphotransferase	celA-2			3.643
EF1160	PTS family oligomeric beta-glucoside porter component IIC				5.896
EF1161	conserved hypothetical protein				3.936
EF1165	nucleotide-binding protein			2.049	
EF1169	UDP-N-acetylglucosamine 1-carboxyvinyltransferase	murA1	0.443		
EF1170	transcription termination factor Rho	rho	0.5		
EF1179	fructokinase	cscK			2.105
EF1189	integral membrane protein 1906			0.469	
EF1190	BS_ykrK family protein		0.167		
EF1191	DegV family protein		0.167		
EF1206	malate dehydrogenase (oxaloacetate-decarboxylating) (NADP(+))				5.396
EF1207	CCS family citrate:cation symporter				13.536
EF1211	NADH peroxidase	npr			3.101
EF1218	spermidine/putrescine ABC superfamily ATP binding cassette transporter, membrane protein		0.227		0.191
EF1220	ABC superfamily ATP binding cassette transporter, ATPase		0.271		
EF1221	protein		0.294		
EF1223	possible S-adenosylhomocysteine deaminase	mtaD1	0.247		
EF1229	conserved hypothetical protein				0.43
EF1230	conserved hypothetical protein				0.417
EF1234	ABC superfamily ATP binding cassette transporter, substrate-binding protein				6.838
EF1235	conserved hypothetical protein				6.738
EF1236	cephalosporin-C deacetylase				11.157
EF1237	endonuclease/exonuclease/phosphatase family protein				6.329
EF1238	RinA family transcriptional regulator				5.607
EF1238	possible beta-glucosidase	bglX			4.394
EF1239	conserved hypothetical protein				3.64
EF1263	conserved hypothetical protein				5.925
EF1278	conserved hypothetical protein				4.975
EF1279	DNA replication protein				3.544

EF1282	conserved hypothetical protein				4.037
EF1284	structural protein				3.419
EF1285	major tail protein				3.083
EF1286	conserved hypothetical protein				3.137
EF1287	conserved hypothetical protein				3.331
EF1288	conserved hypothetical protein				4.231
EF1289	tail protein		0.455		3.582
EF1290	structural protein				3.586
EF1291	conserved hypothetical protein				3.339
EF1292	holin				3.896
EF1293	endolysin	ply-1			3.888
EF1300	FtsW/RodA/SpoVE family cell division protein				2.912
EF1315	conserved hypothetical protein			2.8	
EF1322	YuaF like protein		2.683		
EF1325	conserved hypothetical protein			3.878	
EF1342	MarR family transcriptional regulator			2.466	
EF1347	neopullulanase	nplT			3.775
EF1348	glucan 1,6-alpha-glucosidase	dexB			3.378
EF1349	oligo-1,6-glucosidase	mall-2			4.885
EF1357	AraC family transcriptional regulator				2.438
EF1359	protein-N(pi)-phosphohistidine--sugar phosphotransferase				2.236
EF1392	molybdenum cofactor biosynthesis protein MoaC	moaC			14.935
EF1393	possible molybdenum (Mo2+) cofactor biosynthesis enzyme				9.96
EF1394	mosc domain protein				16.949
EF1395	molybdenum cofactor biosynthesis family protein				17.982
EF1396	molybdopterin binding protein				16.949
EF1398	molybdenum (Mo2+) ABC superfamily ATP binding cassette transporter, membrane protein				33.403
EF1399	ABC superfamily ATP binding cassette transporter ATPase				12.171
EF1400	ABC superfamily ATP binding cassette transporter ATPase				8.44
EF1528	conserved hypothetical protein				6.759
EF1529	PTS family porter component IIC				7.712
EF1535	outer surface protein				4.277
EF1550	DNA-binding protein HU	hup		3.372	
EF1584	cysteine synthase A	cysK	2.463		
EF1591	AraC family transcriptional regulator				6.511
EF1598	deoxyribodipyrimidine photolyase	phrB	2.361		
EF1632	ethanolamine two-component sensor kinase		0.427		
EF1634	ethanolamine utilization protein EutS		0.499		
EF1656	conserved hypothetical protein				4.336

EF1656	conserved hypothetical protein				4.451
EF1686	conserved hypothetical protein				6.774
EF1707	alpha-mannosidase				4.882
EF1708	conserved protein UCP028846				3.82
EF1712	orotate phosphoribosyltransferase	pyrE	4.608		
EF1713	orotidine 5'-phosphate decarboxylase	pyrF	5.692		
EF1714	dihydroorotate oxidase	pyrDB	5.322		
EF1715	dihydroorotate dehydrogenase electron transfer subunit	pyrDII	4.247		
EF1716	carbamoyl phosphate synthase large subunit	carB	5.914		
EF1717	carbamoyl phosphate synthase small subunit	pyrA	4.586		
EF1718	dihydroorotase	pyrC	3.72		
EF1719	aspartate carbamoyltransferase catalytic subunit	pyrB	2.444		
EF1741	catabolite control protein A	ccpA			3.269
EF1764	ribosome-associated inhibitor protein Y	yfiA		2.269	
EF1765	competence protein F	comFC			2.458
EF1769	protein-N(pi)-phosphohistidine--sugar phosphotransferase	celA-1		2.474	
EF1778	phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase	purH			0.378
EF1801	PTS family mannose/fructose/sorbose porter component IIA				6.571
EF1802	PTS family mannose/fructose/sorbose porter component IID				6.699
EF1803	PTS family mannose/fructose/sorbose porter component IIC				6.57
EF1804	possible protein-N(pi)-phosphohistidine--sugar phosphotransferase	levE			6.568
EF1805	possible beta-galactosidase				5.189
EF1806	tagatose-6-phosphate kinase	lacC-1			2.626
EF1918	carboxy-cis,cis-muconate cyclase				3.203
EF1919	acetyltransferase				16.916
EF1920	C4-dicarboxylate anaerobic carrier				13.206
EF1921	possible ribosylpyrimidine nucleosidase				3.348
EF1927	MIP family major intrinsic protein channel protein	glpF			13.092
EF1928	glycerol-3-phosphate oxidase	glpO			6.466
EF1937	possible acetyltransferase		0.432		
EF1952	PTS family mannose/fructose/sorbose porter component IID				4.202
EF1955	sigma-54 dependent DNA-binding transcriptional regulator				4.321
EF1956	conserved hypothetical protein			3.539	
EF2068	MFS family major facilitator transporter				2.327
EF2158	pyruvate synthase				0.435
EF2205	protein of hypothetical function DUF1696				13.136
EF2213	PTS family trehalose porter component IIABC	treB	0.298		6.942
EF2221	ABC superfamily ATP binding cassette transporter, binding protein				4.179
EF2222	carbohydrate ABC superfamily ATP binding cassette transporter, membrane protein				2.748

EF2223	ABC superfamily ATP binding cassette transporter, membrane protein				4.25
EF2231	conserved hypothetical protein				8.062
EF2232	sugar ABC superfamily ATP binding cassette transporter, membrane protein				9.441
EF2234	sugar ABC superfamily ATP binding cassette transporter, sugar-binding protein				2.519
EF2239	conserved hypothetical protein				2.404
EF2364	NCS2 family nucleobase:cation symporter-2		0.26		
EF2429	guanosine 5'-monophosphate oxidoreductase	guaC	0.455		0.279
EF2430	NCS2 family nucleobase:cation symporter-2				0.35
EF2431	possible guanine deaminase	guaD			0.298
EF2435	protein-N(pi)-phosphohistidine--sugar phosphotransferase	sacX			3.626
EF2440	YdjC family protein				6.747
EF2441	possible phosphate transport regulator		0.401		7.553
EF2442	PiT family inorganic phosphate transporter		0.392		7.79
EF2503	conserved hypothetical protein				0.441
EF2548	hypothetical membrane Spanning protein			3.052	
EF2549	uracil phosphoribosyltransferase	upp	0.063		
EF2555	thymidine kinase	tdk			0.36
EF2559	possible pyruvate synthase				8.245
EF2560	possible glutamate synthase (NADPH)	gltA			9.515
EF2561	ferredoxin--NADP(+) reductase subunit alpha				14.705
EF2562	probable flavodoxin				10.716
EF2563	YqeB family selenium-dependent molybdenum hydroxylase system protein				6.463
EF2565	conserved hypothetical protein				16.278
EF2568	possible cysteine desulfurase				16.412
EF2569	PucB family protein				15.463
EF2570	possible aldehyde dehydrogenase (FAD-independent)				5.454
EF2573	NCS2 family nucleobase:cation symporter-2				4.277
EF2574	endoribonuclease inhibitor of translation				3.362
EF2575	carbamate kinase	arcC-4			5.364
EF2578	possible acetylornithine deacetylase/succinyl-diaminopimelate				6.116
EF2579	diaminopropionate ammonia-lyase				12.129
EF2580	dihydropyrimidinase				3.16
EF2581	selenate reductase subunit YgfK				14.684
EF2582	possible S-adenosylhomocysteine deaminase	mtaD			16.153
EF2597	beta-glucosidase	bglH			3.026
EF2598	protein-N(pi)-phosphohistidine--sugar phosphotransferase	bglF			6.306
EF2599	BglG family transcriptional antiterminator				4.352
EF2619	conserved hypothetical protein				2.279
EF2646	glycerate kinase	glxK			5.294

EF2647	GntP family gluconate:proton (H ⁺) symporter				4.137
EF2681	HAD superfamily hydrolase		0.442		
EF2711	AraC family transcriptional regulator				5.373
EF2738	thioredoxin-disulfide reductase	ahpF			7.511
EF2739	peroxiredoxin	ahpC	0.309		8.182
EF2741	lipoate-protein ligase A	lplA-2		4.552	3.016
EF2742	metal-dependent hydrolase			4.276	3.715
EF2863	Mannosyl-glycoprotein endo-beta-N-acetylglucosaminidase				52.651
EF2959	DMT superfamily drug/metabolite transporter				2.708
EF2962	transcriptional regulator				0.419
EF2964	ascorbate-specific PTS system enzyme IIC	ulaA-2			3.014
EF2966	BglG family transcriptional antiterminator				2.902
EF2975	4-hydroxy-2-oxoglutarate aldolase				3.111
EF2976	conserved hypothetical protein				3.363
EF2976	possible L-seryl-tRNA(Sec) selenium transferase				5.369
EF2977	PTS family mannose/fructose/sorbose porter component IID				6.574
EF2978	PTS family mannose/fructose/sorbose porter component IIC				10.766
EF2979	protein-N(pi)-phosphohistidine--sugar phosphotransferase				5.342
EF2980	PTS system fructose IIA component				3.921
EF2981	sigma-54 dependent DNA-binding response regulator				5.659
EF3023	polysaccharide lyase				4.666
EF3060	secreted lipase		2.316		
EF3082	ferric (Fe ³⁺) ABC superfamily ATP binding cassette transporter, binding protein				2.769
EF3084	ferric (Fe ³⁺) ABC superfamily ATP binding cassette transporter, membrane protein		2.841		
EF3087	conserved hypothetical protein				8.838
EF3135	mannonate dehydratase	uxuA			6.735
EF3136	PTS family mannose/fructose/sorbose porter component IIA				11.646
EF3137	possible protein-N(pi)-phosphohistidine--sugar phosphotransferase	sorB2			6.466
EF3138	PTS family mannose/fructose/sorbose porter component IID				11.067
EF3139	PTS family mannose/fructose/sorbose porter component IIC				11.589
EF3140	possible glycerol dehydrogenase				4.82
EF3141	phosphoglycerate dehydrogenase				4.647
EF3142	phosphogluconate dehydrogenase (decarboxylating)				5.343
EF3144	RpiR family transcriptional regulator				6.851
EF3158	beta-phosphoglucomutase	yvdM			4.16
EF3193	murein hydrolase regulator LrgB	lrgB			7.089
EF3194	murein hydrolase regulator LrgA	lrgA			8.445
EF3198	ABC superfamily ATP binding cassette transporter, binding protein				3.292
EF3199	metal ion ABC superfamily ATP binding cassette transporter, membrane protein				4.569

EF3200	ABC superfamily ATP binding cassette transporter, ABC protein				5.451
EF3201	OsmC/Ohr family protein			2.502	
EF3276	protein of hypothetical function DUF917		0.371		
EF3277	cytosine permease		0.357		
EF3315	triphosphoribosyl-dephospho-CoA synthase	citG			26.489
EF3316	malate dehydrogenase (oxaloacetate-decarboxylating) (NADP(+))	citM			33.946
EF3317	oxaloacetate decarboxylase	oadA			34.958
EF3318	citrate lyase holo-[acyl-carrier-protein] synthase	citX			27.13
EF3319	citrate (pro-3S)-lyase	citF			36.831
EF3320	citrate lyase, beta subunit	citE			34.79
EF3321	citrate lyase acyl carrier protein gamma subunit	citD			33.319
EF3322	possible [citrate (pro-3S)-lyase] ligase	citC			41.44
EF3323	conserved hypothetical protein				43.031
EF3324	glutaconyl-CoA decarboxylase	oadB			39.709
EF3325	acetyl-CoA carboxylase biotin carboxyl carrier protein subunit	oadD			41.212
EF3326	conserved hypothetical protein	oadH			38.704
EF3327	CitMHS family citrate-magnesium (Mg ²⁺):proton (H ⁺) citrate-calcium (Ca ²⁺): proton (H ⁺) symporter	citH			134.826
EF3328	GntR family transcriptional regulator	citO			12.642
OG1RF_10213	BglG family transcriptional antiterminator				4.518
OG1RF_10266	deaminase				2.734
OG1RF_10404	CRISPR associated protein				7.026
OG1RF_10405	CRISPR associated protein				7.411
OG1RF_10406	CRISPR associated protein				7.037
OG1RF_10407	CRISPR associated protein				5.877
OG1RF_10596	hypothetical protein		0.368		
OG1RF_10804	possible ATP-binding protein			2.159	
OG1RF_10810	possible Cna family adhesin		2.072		
OG1RF_11100	hypothetical protein			2.983	
OG1RF_11543	possible ABC superfamily ATP binding cassette transporter, membrane protein		2.062		
OG1RF_11561	possible lipoprotein				0.478
OG1RF_11598	possible PTS family porter component IIABC		0.481		
OG1RF_11780	possible PTS family cellobiose porter component IIB				4.766
OG1RF_11782	myo-inositol catabolism protein IolE	iolE			4.45
OG1RF_11786	myo-inositol catabolism protein IolB	iolB			3.355
OG1RF_11928	possible LIV-E family branched chain amino acid exporter AzID		2.582		