HOKKAIDO UNIVERSITY

Title	Genome-wide analytical approaches using semi-quantitative expression proteomics for aromatic hydrocarbon metabolism in Pseudomonas putida F1
Author(s)	Kasahara, Yasuhiro; Morimoto, Hajime; Kuwano, Masayoshi et al.
Citation	Journal of Microbiological Methods, 91(3), 434-442 https://doi.org/10.1016/j.mimet.2012.09.017
Issue Date	2012-12
Doc URL	https://hdl.handle.net/2115/52007
Type	journal article
File Information	Tables_S4.pdf, Supplementary Data: Tables S4

Hokkaido University Collection of Scholarly and Academic Papers : HUSCAP

Supporting information Tables S4. Substrate-specific proteins up-regulated under different carbon source cultures.
The proteins with the Ni value of 2.00 or more were selected in proteome data set of each substrate.

Glucose

Pput name	Protein name	Protein content (/10000 mol%)					
		Glucose	Toluene	Ethylbenzene	Benzene	Cymene	Cumate
Pput_0003	recombination protein F	2.96	0	0	0	0	0
Pput_0027	hypothetical protein Pput_0027	8.26	0	0	0	0	0
Pput_0129	NLPA lipoprotein	947.28	54.48	0	70.87	164.06	55.82
Pput_0259	thioesterase superfamily protein	10.14	0	0	0	0	0
Pput_0304	hypothetical protein Pput_0304	72.35	0	0	0	0	0
Pput_0306	A/G-specific adenine glycosylase	3.12	0	0	0	0	0
Pput_0404	pyrroloquinoline quinone biosynthesis protein PqqB	8.26	0	0	0	0	0
Pput_0509	30S ribosomal protein S13	7,949.99	720.80	736.42	1,262.93	809.32	1,113.44
Pput_0529	asparaginase	10.29	0	0	0	1.24	1.53
Pput_0539	OmpW family protein	116.01	0	0	0	17.29	2.37
Pput_0543	hypothetical protein Pput_0543	13.41	0	0	0	2.31	0
Pput_0613	two component LuxR family transcriptional regulator	6.39	0	0	0	0	0
Pput_0660	regulatory protein GntR, HTH	4.21	0	0	0	0	0
Pput_0717	alkylphosphonate utilization operon protein PhnA	75.00	0	0	0	7.15	13.88
Pput_0786	hypothetical protein Pput_0786	5.46	0	0	0	0	0
Pput_0848	hypothetical protein Pput_0848	9.82	0	0	0	0	0
Pput_0942	methyltransferase type 11	7.80	0	0	0	0	0
Pput_1014	putative SAM-dependent methyltransferase	3.43	0	0	0	0	0
Pput_1053	multiple sugar transport system substrate-binding protein	1,556.82	0	0	21.99	3.44	4.81
Pput_1056	ABC transporter related	56.29	0	0	0	0	0
Pput_1226	hypothetical protein Pput_1226	2.03	0	0	0	0	0
Pput_1228	MiaB-like tRNA modifying enzyme YliG	3.59	0	0	0	0	0
Pput_1314	urea amidolyase related protein	3.74	0	0	0	0	0
Pput_1325	hypothetical protein Pput_1325	3.43	0	0	0	0	0
Pput_1467	flagellar basal body FlaE domain-containing protein	7.17	0	0	0	0	0
Pput_1491	flagellar hook-associated 2 domain-containing protein	5.30	0	0	0	0	0
Pput_1504	response regulator receiver protein	1.87	0	0	0	0	0
Pput_1604	coproporphyrinogen III oxidase	5.93	0	0	0	0	0
Pput_1615	cytochrome c oxidase, cbb3-type, subunit III	63.00	0	0	0	0	0
Pput_1617	cytochrome c oxidase, cbb3-type, subunit II	236.70	0	0	0	8.62	10.67
Pput_1622	extracellular solute-binding protein	4.21	0	0	0	0	0
Pput_1632	gluconate 2-dehydrogenase acceptor subunit	5.61	0	0	0	0	0
Pput_1668	succinyl-CoA synthetase subunit beta	7,746.66	2,037.35	2,059.20	2,614.31	1,662.97	1,223.89
Pput_1669	succinyl-CoA synthetase subunit alpha	13,093.38	2,266.90	2,090.79	2,702.78	2,742.85	1,616.27
Pput_1846	ribulose-bisphosphate carboxylase	2.49	0	0	0	0	0
Pput_2093	helix-turn-helix domain-containing protein	8.42	0	0	0	0	0
Pput_2155	universal stress protein domain-containing protein	109.00	0	0	0	0	0
Pput_2278	LysR family transcriptional regulator	3.59	0	0	0	0	0
Pput_2318	threonine dehydratase	7.33	0	0	0	0.79	0
Pput_2345	gluconate transporter	17.00	0	0	0	0	0
Pput_2375	gluconate 2-dehydrogenase acceptor subunit	52.70	0	0	0	0	0
Pput_2376	gluconate 2-dehydrogenase acceptor subunit	209.10	0	0	0	0	0
Pput_2377	gluconate 2-dehydrogenase acceptor subunit	47.40	0	0	0	0	0
Pput_2379	xylose isomerase domain-containing protein	19.65	0	0	0	0	0
Pput_2380	ribokinase-like domain-containing protein	28.69	0	0	0	0	0
Pput_2382	gluconate 2-dehydrogenase	337.28	0	21.72	0	0	0
Pput_2400	p-hydroxycinnamoyl CoA hydratase/lyase	3.74	0	0	0	0	0
Pput_2410	TonB-dependent receptor	5.93	0	0	0	0	0
Pput_2450	phosphoribosyltransferase	5.61	0	0	0	0	0
Pput_2460	heat shock protein Hsp20	9.98	0	0	0	0	0
Pput_2470	UspA domain-containing protein	3.59	0	0	0	0	0
Pput_2571	LysR family transcriptional regulator	3.59	0	0	0	0	0
Pput_2593	3-oxoacid CoA-transferase, B subunit	17.62	0	0	0	1.80	2.23
Pput_2733	GntR family transcriptional regulator	5.15	0	0	0	0	0
Pput_2745	response regulator receiver protein	2.34	0	0	0	0	0
Pput_2746	hypothetical protein Pput_2746	5.15	0	0	0	0	0
Pput_2820	NADH:flavin oxidoreductase/NADH oxidase	2.65	0	0	0	0	0
Pput_2864	phage integrase family protein	9.82	0	0	0	0	0
Pput_3088	cytochrome c, class I	6.86	0	0	0	0	0
Pput_3126	metal dependent phosphohydrolase	1.87	0	0	0	0	0
Pput_3260	aminotransferase, class V	2.81	0	0	0	0	0
Pput_3315	hypothetical protein Pput_3315	38.36	0	0	0	0	0
Pput_3316	electron transport protein SCO1/SenC	7.48	0	0	0	0	0
Pput_3441	para-aminobenzoate synthase, subunit I	8.73	0	0	0	0	0
Pput_3481	methyl-accepting chemotaxis sensory transducer	10.76	0	0	0	0	0
Pput_3532	peptidase U32	7.80	0	0	0	0	0
Pput_3615	two component LuxR family transcriptional regulator	5.30	0	0	0	0	0
Pput_3729	metallophosphoesterase	3.27	0	0	0	0	0
Pput_3986	septum site-determining protein MinD	1,313.72	246.52	383.02	226.29	203.03	367.61
Pput_4016	molybdopterin oxidoreductase	0.94	0	0	0	0	0
Pput_4153	4Fe-4S ferredoxin iron-sulfur binding domain-containing protein	95.12	0	0	0	7.72	4.47
Pput_4185	elongation factor Ts	#########	2,115.06	996.04	3,095.73	########	########
Pput_4252	thiol:disulfide interchange protein DsbC	17.00	0	0	0	1.75	0
Pput_4276	carbohydrate-selective porin OprB	14.50	0	0	0	0	0
Pput_4333	LysR family transcriptional regulator	3.74	0	0	0	0	0
Pput_4350	phosphate transporter	5.46	0	0	0	0	0
Pput_4353	glycosyl transferase, group 1	8.58	0	0	0	0	0

Pput_4394	cell division protein FtsL	11.54	0	0	0	0	0
Pput_4506	DNA repair protein RadA	5.15	0	0	0	0	0
Pput_4651	hypothetical protein Pput_4651	7.64	0	0	0	1.35	0
Pput_4705	precorrin-2 C(20)-methyltransferase	9.82	0	0	0	1.58	0
Pput_4712	band 7 protein	5.93	0	0	0	0	0
Pput_4714	hypothetical protein Pput_4714	322.93	0	0	64.51	0	0
Pput_4716	TonB-dependent copper receptor	67.67	0	0	0	2.53	0
Pput_4717	peptidase	11.54	0	0	0	1.75	0
Pput_4735	AsmA family protein	1.56	0	0	0	0	0
Pput_4776	putative iron-sulfur cluster binding protein	3.12	0	0	0	0	0
Pput_4826	hypothetical protein Pput_4826	2.81	0	0	0	0	0
Pput_4836	phosphoglycerate kinase	648.05	164.35	120.43	111.92	51.36	89.93
Pput_4930	peptidase M23B	12.47	0	0	0	2.25	0
Pput_4947	uroporphyrinogen decarboxylase	27.13	0	0	0	2.48	2.23
Pput_5158	isochorismatase hydrolase	5.61	0	0	0	0	0
Pput_5232	response regulator receiver protein	166.69	0	0	11.73	13.07	10.81
Pput_5292	DeoR family transcriptional regulator	7.17	0	0	0	0	0

Toluene

Pput name	Protein name	Protein content (/10000 mol%)					
		G	T	E	B	Cy	Cu
Pput_0060	outer membrane porin	0	46.45	0	0	3.55	3.63
Pput_0167	hypothetical protein Pput_0167	0	13.40	0	0	0	0
Pput_0274	HAD family hydrolase	4.99	41.98	0	0	0	0
Pput_0337	oxidoreductase FAD-binding subunit	2.96	26.80	0	0	2.70	3.42
Pput_0355	putative acyltransferase	0	33.05	0	0	0	6.07
Pput_0397	LysR family transcriptional regulator	0	20.54	0	0	0	0
Pput_0519	GntR family transcriptional regulator	0	19.65	0	0	2.42	1.05
Pput_0822	outer membrane porin	3.90	60.74	0	0	1.35	0
Pput_1043	TonB-dependent hemoglobin/transferrin/lactoferrin family receptor	0	51.80	0	8.31	3.72	0
Pput_1091	general secretion pathway protein H	0	71.45	0	0	0	0
Pput_1225	hypothetical protein Pput_1225	0	23.22	0	0	2.31	1.81
Pput_1309	hypothetical protein Pput_1309	0	37.51	0	0	3.94	0
Pput_1532	flagellar motor protein MotD	9.04	66.10	0	0	2.31	1.81
Pput_1607	heavy metal translocating P-type ATPase	0	14.29	0	0	0.45	1.12
Pput_1624	peptide synthase	0	2.68	0	0	0.23	0.28
Pput_1642	aminotransferase, class V	0	22.33	0	0	0	0
Pput_1679	hypothetical protein Pput_1679	0	21.44	0	0	2.20	0
Pput_1684	ABC transporter related	0	8.93	0	0	0	0
Pput_1728	TonB-dependent receptor	0	13.40	0	0	0	0
Pput_1889	aldehyde oxidase and xanthine dehydrogenase, molybdopterin binding	1.40	29.48	0	5.86	1.01	0
Pput_1898	outer membrane porin	0	14.29	0	0	0	0
Pput_1999	outer membrane porin	0	22.33	0	0	0	0
Pput_2016	glycolate oxidase iron-sulfur subunit	0	40.19	0	0	0	0
Pput_2017	glycolate oxidase FAD binding subunit	10.92	251.88	41.46	0	4.56	3.14
Pput_2018	glycolate oxidase subunit GlcD	3.43	134.87	21.72	6.84	1.24	4.12
Pput_2244	coenzyme F420-dependent N5 N10-methylene tetrahydromethanopterin reductase-like protein	0	13.40	0	0	0	0
Pput_2419	TonB-dependent siderophore receptor	0	89.32	14.81	4.89	6.42	0
Pput_2501	ATP-dependent DNA ligase	0	7.15	0	0	0	0
Pput_2547	outer membrane porin	0	24.12	0	0	0	0
Pput_2627	ATPase	1.87	17.86	0	0	1.86	1.40
Pput_2790	peptidase S45, penicillin amidase	0	8.04	0	0	0.45	0
Pput_2798	surface antigen (D15)	1.87	10.72	0	0	0.68	0
Pput_2844	urease subunit alpha	0	54.48	0	0	0	0
Pput_2971	short-chain dehydrogenase/reductase SDR	0	25.01	0	0	0	0
Pput_2974	Beta-ketoacyl synthase-like protein	0	16.08	0	0	0	0
Pput_2994	ABC transporter related	0	12.50	0	0	0	0
Pput_3024	hypothetical protein Pput_3024	0	36.62	0	0	0	0
Pput_3065	hypothetical protein Pput_3065	0	13.40	0	0	0	0
Pput_3066	hypothetical protein Pput_3066	0	19.65	0	0	0	0
Pput_3068	proteasome-type protease-like protein	0	43.77	0	0	0	0
Pput_3084	Pyrrolo-quinoline quinone	1.87	16.08	0	0	0	1.26
Pput_3178	LysR family transcriptional regulator	0	19.65	0	0	0	3.70
Pput_3348	integral membrane sensor signal transduction histidine kinase	0	14.29	0	0	0	1.12
Pput_3538	AFG1 family ATPase	2.81	25.90	0	0	0	0
Pput_3644	ribosome modulation factor	881.01	########	1,584.38	784.44	798.23	1,743.59
Pput_3646	ABC-type nitrate/sulfonate/bicarbonate transport systems periplasmic components-like protein	0	16.08	0	0	0	0
Pput_3717	nuclease SbcCD, D subunit	2.65	15.18	0	0	0	1.19
Pput_3726	hypothetical protein Pput_3726	6.39	33.94	0	0	1.46	4.47
Pput_3920	8-amino-7-oxononanoate synthase	0	14.29	0	0	0	0
Pput_3991	MscS mechanosensitive ion channel	0	8.93	0	0	0	0
Pput_4054	phosphoribosylglycinamide formyltransferase	8.89	65.20	0	0	8.22	4.88
Pput_4275	TonB-dependent receptor	0	34.83	0	0	1.91	0
Pput_4393	peptidoglycan glycosyltransferase	0	10.72	0	0	0	0
Pput_4440	Sel1 domain-containing protein	0	12.50	0	0	0	0
Pput_4541	CDP-diacylglycerol--serine O-phosphatidyltransferase	0	42.87	0	0	0	0
Pput_4551	hemin importer ATP-binding subunit	0	25.90	0	0	1.63	2.02
Pput_4719	ABC-type branched-chain amino acid transport systems periplasmic component-like protein	0	15.18	0	0	1.46	0
Pput_4779	ribosome-associated GTPase	0	53.59	0	10.26	0	0
Pput_4828	extracellular solute-binding protein	0	45.55	0	0	1.80	4.60
Pput_4922	signal transduction histidine kinase, nitrogen specific, NtrB	3.12	27.69	0	0	1.75	2.16
Pput_5073	sigma-54 factor interaction domain-containing protein	0	71.45	0	0	0	0
Pput_5276	transketolase domain-containing protein	4.05	23.22	0	0	2.31	2.86

Ethylbenzene

Pput name Protein name	Protein content (/10000 mol%)					
	G	T	E	B	Cy	Cu
Pput_0013 copper resistance B precursor	0	0	19.74	0	1.13	3.00
Pput_0021 RND family efflux transporter MFP subunit	0	0	20.73	0	1.18	0
Pput_0036 hypothetical protein Pput_0036	5.61	0	32.58	0	0	0
Pput_0067 sigma-54 dependent trancsriptional regulator	2.49	0	15.79	0	0	1.67
Pput_0108 hypothetical protein Pput_0108	0	0	18.76	0	1.07	2.09
Pput_0124 hypothetical protein Pput_0124	4.05	0	63.18	13.68	5.58	6.00
Pput_0163 sodium-dependent inorganic phosphate (Pi) transporter	0	0	23.69	0	0	0
Pput_0235 ABC transporter related	0	0	58.24	0	0	0
Pput_0279 integral membrane sensor signal transduction histidine kinase	0	0	23.69	0	2.48	2.02
Pput_0389 8-amino-7-oxononanoate synthase	0	0	18.76	0	2.20	0
Pput_0422 DNA primase	0	0	9.87	0	0	0
Pput_0560 TonB-dependent receptor, plug	0	0	15.79	0	0	0
Pput_0592 branched-chain alpha-keto acid dehydrogenase subunit E2	0	0	37.51	0	0	0
Pput_0593 transketolase, central region	0	0	113.52	19.55	5.58	2.86
Pput_0594 pyruvate dehydrogenase (acetyl-transferring)	0	0	182.62	10.75	8.45	10.47
Pput_0655 ABC transporter related	0	0	50.34	0	2.65	4.47
Pput_0726 hypothetical protein Pput_0726	0	0	29.61	0	0	2.09
Pput_0777 hypothetical protein Pput_0777	0	0	72.06	0	2.82	3.49
Pput_0890 flavodoxin/nitric oxide synthase	0	0	7.90	0	0.45	0
Pput_0921 extracellular solute-binding protein	2.03	0	17.77	0	0	0.91
Pput_0938 hypothetical protein Pput_0938	0	0	21.72	0	0	2.58
Pput_0976 Maf-like protein	0	0	38.50	0	3.60	0
Pput_1010 hypothetical protein Pput_1010	30.25	88.43	402.76	79.18	75.30	42.28
Pput_1011 GIY-YIG nuclease superfamily protein	0	0	38.50	0	0	0
Pput_1017 DNA polymerase III subunit chi	0	0	45.41	0	2.93	3.63
Pput_1113 leucine-rich repeat-containing protein	0	0	4.94	0	0	0
Pput_1148 GntR family transcriptional regulator	0	0	13.82	0	1.86	1.53
Pput_1206 outer membrane porin	0	0	26.65	0	1.52	1.19
Pput_1217 integral membrane sensor signal transduction histidine kinase	0	0	32.58	0	0	0
Pput_1254 radical SAM domain-containing protein	0	0	173.74	24.44	19.60	19.67
Pput_1281 NADH:flavin oxidoreductase/NADH oxidase	4.21	17.86	265.54	0	37.17	0
Pput_1288 LysR family transcriptional regulator	21.36	0	117.47	17.11	2.76	9.35
Pput_1290 hypothetical protein Pput_1290	0	0	22.70	0	0	1.53
Pput_1319 aspartyl/asparaginyl beta-hydroxylase	5.46	0	44.42	0	2.76	1.53
Pput_1341 FAD dependent oxidoreductase	0	0	34.55	0	0	0
Pput_1406 integral membrane sensor signal transduction histidine kinase	0	0	15.79	0	0	0
Pput_1425 transcriptional regulator, TyrR	0	0	11.85	0	0	0
Pput_1460 flagellar basal body P-ring biosynthesis protein FlgA	0	0	27.64	0	0	0
Pput_1654 hypothetical protein Pput_1654	38.36	0	216.19	0	15.32	23.79
Pput_1655 OmpA/MotB domain-containing protein	17.00	84.85	471.86	43.01	30.41	37.33
Pput_1695 integral membrane sensor hybrid histidine kinase	0	0	28.63	0	2.03	3.49
Pput_1754 hypothetical protein Pput_1754	0	0	68.11	0	6.65	3.35
Pput_1979 LysR family transcriptional regulator	0	0	33.56	0	0	0
Pput_2000 precorrin 6A synthase	0	0	28.63	0	0	0
Pput_2003 MCP methyltransferase, CheR-type	0	0	23.69	0	0	0
Pput_2004 CheB methylesterase	0	0	24.68	0	0	0
Pput_2013 GntR family transcriptional regulator	0	0	21.72	0	1.69	3.84
Pput_2039 CoA-binding domain-containing protein	0	0	14.81	0	0.84	0
Pput_2042 aminotransferase, class I and II	0	0	39.49	0	2.25	0
Pput_2085 alpha/beta hydrolase fold	0	0	38.50	0	0	5.72
Pput_2110 gluconate 2-dehydrogenase acceptor subunit	0	36.62	221.12	32.75	5.63	4.26
Pput_2140 dihydrodipicolinate synthase	0	0	349.45	0	0	0
Pput_2143 ABC-type branched-chain amino acid transport systems periplasmic component-like protei	2.81	0	39.49	0	0	2.02
Pput_2173 two component LuxR family transcriptional regulator	0	0	53.31	0	4.39	3.77
Pput_2207 LysR family transcriptional regulator	0	0	37.51	0	1.97	5.65
Pput_2220 acyl-CoA dehydrogenase domain-containing protein	0	16.08	287.26	5.86	0.68	0.84
Pput_2221 acyl-CoA synthetase	0	0	137.21	0	0	0
Pput_2222 PAS/PAC sensor signal transduction histidine kinase	0	0	14.81	0	0	0
Pput_2228 PAS/PAC sensor hybrid histidine kinase	0	0	48.37	0	4.28	5.30
Pput_2236 AraC family transcriptional regulator	0	0	37.51	0	0	4.53
Pput_2268 cobalamin biosynthesis protein CobW	19.80	27.69	127.34	9.77	8.28	13.26
Pput_2270 magnesium chelatase	0	0	19.74	0	0	2.44
Pput_2304 FAD dependent oxidoreductase	0	0	61.20	0	0.90	0
Pput_2328 diguanylate phosphodiesterase	0	0	31.59	0	1.07	0
Pput_2335 RND efflux system outer membrane lipoprotein	0	0	483.71	0	0	0
Pput_2337 RND family efflux transporter MFP subunit	0	0	40.47	0	0	0
Pput_2343 two component, sigma54 specific, Fis family transcriptional regulator	3.27	0	20.73	0	2.82	1.95
Pput_2389 LysR family transcriptional regulator	0	0	37.51	0	0	0
Pput_2392 LysR family transcriptional regulator	0	0	37.51	0	1.35	2.44
Pput_2429 alcohol dehydrogenase	0	0	26.65	0	0	0
Pput_2539 transcriptional regulator, CdaR	0	0	47.38	0	1.01	1.26
Pput_2544 luciferase family protein	0	0	102.66	10.75	1.97	0
Pput_2562 LysR family transcriptional regulator	0	0	24.68	0	1.41	0
Pput_2563 aldehyde dehydrogenase	0	0	15.79	0	0	0
Pput_2568 FAD dependent oxidoreductase	0	0	16.78	0	0	0
Pput_2591 XRE family transcriptional regulator	9.51	0	82.92	0	13.69	7.81
Pput_2660 Nitrilase/cyanide hydratase and apolipoprotein N-acyltransferase	0	0	30.60	0	4.00	4.95
Pput_2679 hypothetical protein Pput_2679	0	0	91.81	0	4.00	7.12
Pput_2686 RNA polymerase sigma factor	0	0	35.54	0	0	0
Pput_2698 short-chain dehydrogenase/reductase SDR	0	0	43.43	0	1.69	4.88
Pput_2703 short-chain dehydrogenase/reductase SDR	4.05	0	325.76	0	1.63	3.84
Pput_2711 LysR family transcriptional regulator	0	0	64.16	0	1.35	1.67
Pput_2735 two component transcriptional regulator	0	0	53.31	0	1.91	0
Pput_2770 urea amidolyase related protein	0	0	22.70	0	0	0
Pput_2773 LysR family transcriptional regulator	0	0	21.72	0	1.30	0
Pput_2783 DNA-binding transcriptional regulator CsiR	13.10	53.59	261.60	42.52	17.46	21.63
Pput_2801 putative transmembrane anti-sigma factor	0	0	130.30	0	0	2.93
Pput_2856 LysR family transcriptional regulator	0	0	21.72	0	0	0
Pput_2862 alcohol dehydrogenase	13.88	39.30	245.80	55.23	11.49	25.67
Pput_3009 ribose-phosphate pyrophosphokinase	0	0	21.72	0	0	2.51

Pput_3073 hydroxymethylglutaryl-CoA reductase, degradative	0	0	16.78	0	0.96	0
Pput_3090 pentapeptide repeat-containing protein	0	0	47.38	0	0	0
Pput_3176 hypothetical protein Pput_3176	0	0	56.27	0	0	0
Pput_3181 glutathione S-transferase domain-containing protein	12.79	28.58	182.62	40.08	6.59	18.56
Pput_3184 TetR family transcriptional regulator	0	0	34.55	0	0	2.44
Pput_3194 ATPase-like protein	0	0	39.49	0	1.63	3.28
Pput_3200 protocatechuate 4,5-dioxygenase	0	0	15.79	0	0	1.12
Pput_3202 LysR family transcriptional regulator	0	0	17.77	0	0	1.95
Pput_3245 FAD dependent oxidoreductase	8.58	0	72.06	8.31	4.06	7.12
Pput_3252 hypothetical protein Pput_3252	183.06	81.28	1,397.81	227.76	63.98	146.17
Pput_3255 alkyl hydroperoxide reductase subunit F	0	0	13.82	0	0	0
Pput_3263 dihydropteridine reductase	4.99	0	31.59	0	1.91	0
Pput_3270 AraC-like transcriptional regulator	0	0	37.51	0	0	3.77
Pput_3285 CzcA family heavy metal efflux protein	0	0	5.92	0	0	0
Pput_3300 leucine-rich repeat-containing protein	0	0	3.95	0	0	0
Pput_3302 DNA polymerase II	0	0	7.90	0	0.45	0.56
Pput_3305 LysR family transcriptional regulator	3.43	0	46.40	0	3.49	5.65
Pput_3318 acyltransferase 3	0	0	17.77	0	0	0
Pput_3352 hypothetical protein Pput_3352	0	0	28.63	0	1.63	2.79
Pput_3433 putative AcnD-accessory protein PrpF	51.15	108.97	1,018.74	71.85	65.89	84.21
Pput_3434 aconitate hydratase	83.89	204.54	1,403.73	175.46	224.32	254.94
Pput_3436 2-methylisocitrate lyase	50.21	204.54	1,866.71	230.69	277.21	123.70
Pput_3437 GntR family transcriptional regulator	23.39	55.38	384.99	39.10	36.16	27.21
Pput_3484 GntR domain-containing protein	0	0	32.58	0	2.98	0
Pput_3506 AraC family transcriptional regulator	0	0	34.55	0	0	0
Pput_3525 AMP-dependent synthetase and ligase	21.36	59.84	278.38	43.01	18.59	10.47
Pput_3561 LysR family transcriptional regulator	0	0	54.29	0	0	2.72
Pput_3677 GntR family transcriptional regulator	0	0	28.63	0	0	2.02
Pput_3693 acyl-CoA dehydrogenase domain-containing protein	0	0	11.85	0	0	0
Pput_3711 hypothetical protein Pput_3711	13.10	17.86	89.83	0	2.53	4.12
Pput_3732 cytochrome B561	0	0	37.51	0	3.77	2.86
Pput_3740 helix-turn-helix domain-containing protein	0	0	74.04	0	0	2.44
Pput_3742 LysR family transcriptional regulator	0	0	23.69	0	1.35	2.51
Pput_3757 helix-turn-helix domain-containing protein	4.83	0	39.49	0	0	2.02
Pput_3763 sporulation domain-containing protein	5.61	0	121.42	0	10.64	14.16
Pput_3814 tetraacyldisaccharide 4'-kinase	3.27	0	20.73	0	0	0
Pput_3820 ABC transporter related	13.41	0	230.99	17.59	3.49	8.16
Pput_3878 hypothetical protein Pput_3878	17.78	0	146.10	0	8.22	10.19
Pput_3887 Smr protein/MutS2	6.24	0	78.97	0	11.83	2.51
Pput_3948 methylthioribose-1-phosphate isomerase	4.99	0	53.31	9.77	2.48	3.63
Pput_3977 hypothetical protein Pput_3977	0	0	692.98	0	0	0
Pput_4004 hypothetical protein Pput_4004	0	0	52.32	0	0	0
Pput_4013 D-isomer specific 2-hydroxyacid dehydrogenase, NAD-binding	0	0	34.55	0	0	0
Pput_4031 LysR family transcriptional regulator	0	0	73.05	0	0	0
Pput_4040 nicotinate-nucleotide--dimethylbenzimidazole phosphoribosyltransferase	0	0	21.72	0	1.24	0
Pput_4067 multi-sensor hybrid histidine kinase	0	0	11.85	0	0.62	0
Pput_4084 hypothetical protein Pput_4084	55.98	44.66	191.51	27.86	28.22	29.44
Pput_4159 2-C-methyl-D-erythritol 2,4-cyclodiphosphate synthase	11.54	0	127.34	0	6.14	14.23
Pput_4232 protein-glutamate O-methyltransferase	0	0	25.67	0	0.96	2.51
Pput_4299 putative signal transduction protein	0	0	26.65	0	0	0
Pput_4300 integral membrane sensor signal transduction histidine kinase	0	0	23.69	0	0	0
Pput_4302 outer membrane porin	0	0	25.67	0	3.32	1.19
Pput_4328 AraC-like transcriptional regulator	5.61	41.98	242.84	24.93	4.84	7.40
Pput_4373 2-dehydropantoate 2-reductase	5.46	0	47.38	0	2.98	7.60
Pput_4417 AsnC family transcriptional regulator	0	0	46.40	0	0	4.74
Pput_4496 alpha/beta hydrolase-like protein	0	0	22.70	0	0	1.60
Pput_4522 LysR family transcriptional regulator	0	0	36.52	0	1.35	3.70
Pput_4534 diguanylate cyclase	0	0	15.79	0	0	0
Pput_4670 rare lipoprotein B	920.46	#######	########	#######	865.59	#######
Pput_4710 cobalt-precorrin-6x reductase	0	0	30.60	0	1.58	0
Pput_4724 GCN5-related N-acetyltransferase	0	0	44.42	0	3.66	6.28
Pput_4746 nicotinate phosphoribosyltransferase	4.05	0	24.68	0	0	3.28
Pput_4796 hypothetical protein Pput_4796	0	0	28.63	0	1.63	0
Pput_4800 3-deoxy-D-manno-octulosonic-acid transferase	6.86	14.29	66.14	7.82	3.10	4.26
Pput_4829 GCN5-related N-acetyltransferase	11.69	0	74.04	0	0	3.21
Pput_4845 hypothetical protein Pput_4845	0	0	311.94	0	0	20.09
Pput_4878 poly(3-hydroxyalkanoate) depolymerase	0	0	33.56	0	0	0
Pput_4893 16S ribosomal RNA methyltransferase RsmE	0	0	30.60	0	1.75	0
Pput_4911 Lipocalin family protein	0	0	36.52	0	3.44	0
Pput_4943 cobyrinic acid a,c-diamide synthase	21.52	0	120.43	20.04	7.77	14.30
Pput_4959 nuclease	4.21	0	91.81	13.20	7.21	7.19
Pput_5167 FAD dependent oxidoreductase	0	0	14.81	0	0	0
Pput_5170 hypothetical protein Pput_5170	0	0	14.81	0	1.69	2.23
Pput_5272 cardiolipin synthetase	0	0	13.82	0	0	0

Benzene

Pput name	Protein name	Protein content (/10000 mol%)					
		G	T	E	B	Cy	Cu
Pput_0071	LysR family transcriptional regulator	0	0	0	17.11	0	0
Pput_0357	DNA-binding response regulator CreB	0	0	0	36.17	1.80	3.63
Pput_0359	hypothetical protein Pput_0359	0	0	0	7.82	0	0
Pput_0425	putative glycerol-3-phosphate acyltransferase PlsY	0	0	0	42.03	0	4.19
Pput_0427	2-amino-4-hydroxy-6-hydroxymethyldihydropteridine pyrophosphokinase	0	0	0	20.53	2.59	0
Pput_0517	major facilitator transporter	0	0	0	7.82	0	0
Pput_0806	GAD-like protein	0	0	0	11.24	0	0
Pput_1084	hypothetical protein Pput_1084	0	0	0	4.89	0	0
Pput_1257	methyl-accepting chemotaxis sensory transducer	0	0	0	10.75	0	1.05
Pput_1388	putative agmatinase	0	0	0	16.62	0	0
Pput_1546	periplasmic protein thiol--disulphide oxidoreductase DsbE	0	0	0	20.53	0	2.65
Pput_1708	potassium-transporting ATPase subunit B	0	0	0	4.89	0	0
Pput_1746	NADH dehydrogenase subunit A	0	0	0	105.57	8.50	14.58
Pput_1759	hypothetical protein Pput_1759	0	0	0	22.48	2.59	0
Pput_1870	3-oxoacid CoA-transferase, B subunit	0	0	0	188.66	0	0
Pput_1871	3-oxoacid CoA-transferase, A subunit	0	0	0	883.17	4.45	5.51
Pput_1978	phage integrase family protein	0	0	0	34.70	0	0
Pput_2034	extracellular solute-binding protein	0	0	0	12.71	0	0
Pput_2053	muconate and chloromuconate cycloisomerase	0	0	0	1,406.13	0	0
Pput_2054	muconolactone Delta-isomerase	0	0	0	820.61	0	0
Pput_2055	catechol 1,2-dioxygenase	15.28	110.75	126.36	1,962.32	0	4.95
Pput_2058	aldo/keto reductase	4.21	0	0	191.10	0	0
Pput_2144	response regulator receiver/ANTAR domain-containing protein	0	0	0	17.59	0	0
Pput_2149	methyl-accepting chemotaxis sensory transducer	2.03	35.73	0	291.78	2.31	1.40
Pput_2275	endoribonuclease L-PSP	14.81	0	0	99.70	9.86	15.91
Pput_2371	Rhs element Vgr protein	0	0	0	4.40	0	0
Pput_2405	hypothetical protein Pput_2405	0	0	0	35.68	0	0
Pput_2406	sulfatase	3.12	17.86	0	1,018.55	2.48	2.86
Pput_2407	hypothetical protein Pput_2407	0	0	0	7.33	0	0
Pput_2519	diguanylate cyclase	0	0	0	9.29	0	0
Pput_2577	glycosyl transferase family protein	0	0	0	10.75	1.13	0
Pput_2691	shikimate 5-dehydrogenase	0	0	0	19.55	0	0
Pput_2857	LysR family transcriptional regulator	0	0	0	11.24	0	0
Pput_3039	two component transcriptional regulator	0	0	0	16.13	0	0
Pput_3054	5-methyltetrahydropteroyltriglutamate--homocysteine methyltransferase	0	0	0	9.77	1.13	0
Pput_3123	oxidoreductase domain-containing protein	0	0	0	15.15	0	0
Pput_3125	putative FAD-binding dehydrogenase	0	0	0	39.10	0	0
Pput_3238	putative PAS/PAC sensor protein	0	0	0	5.38	0	0
Pput_3334	type 1 pili usher pathway chaperone CsuC	0	0	0	12.71	0	0
Pput_3367	prophage tail length tape measure	0	0	0	3.91	0	0
Pput_3453	hypothetical protein Pput_3453	0	0	0	3.91	0	0
Pput_3723	RND efflux transporter	0	0	0	3.91	0	0
Pput_3777	heat shock protein Hsp20	8.42	338.52	651.52	3,193.48	77.72	63.35
Pput_4207	RND family efflux transporter MFP subunit	0	0	0	9.77	0	0
Pput_4321	integral membrane sensor signal transduction histidine kinase	0	0	0	5.86	0.68	0
Pput_4340	outer membrane porin	0	0	0	91.40	0	1.19
Pput_4342	4-carboxymuconolactone decarboxylase	15.75	0	0	108.01	0	8.86
Pput_4346	beta-ketoadipyl CoA thiolase	0	0	0	358.74	0	0
Pput_4553	periplasmic binding protein	0	0	0	28.84	4.45	4.12
Pput_4883	hypothetical protein Pput_4883	0	0	0	1.95	0	0
Pput_4933	hypothetical protein Pput_4933	0	0	0	1.95	0	0
Pput_5011	LysR family transcriptional regulator	0	0	0	26.88	0	0

p-cymene

Pput name	Protein name	Protein content (/10000 mol%)					
		G	T	E	B	Cy	Cu
Pput_0023	hypothetical protein Pput_0023	0	0	0	0	16.39	0
Pput_0069	FAD-dependent pyridine nucleotide-disulphide oxidoreductase	0	0	0	0	2.70	0
Pput_0200	RND efflux system outer membrane lipoprotein	0	0	0	0	0.79	0
Pput_0226	hypothetical protein Pput_0226	0	0	0	0	1.41	0
Pput_0239	acyl-CoA dehydrogenase type 2	0	0	0	0	0.90	0
Pput_0245	taurine dioxygenase	0	0	0	0	2.20	0
Pput_0251	NAD(P)H-dependent FMN reductase	0	0	0	0	3.55	0
Pput_0303	hypothetical protein Pput_0303	0	0	0	0	4.34	0
Pput_0305	hypothetical protein Pput_0305	0	0	0	0	24.27	0
Pput_0327	hypothetical protein Pput_0327	0	0	0	0	1.69	0
Pput_0346	sarcosine oxidase delta subunit family protein	0	0	0	0	4.00	0
Pput_0373	hypothetical protein Pput_0373	0	0	0	0	0.34	0
Pput_0401	pyrroloquinoline quinone biosynthesis protein PqqE	0	0	0	0	1.01	0
Pput_0402	pyrroloquinoline quinone biosynthesis protein PqqD	0	0	0	0	5.24	0
Pput_0450	phosphoglycolate phosphatase	0	0	0	0	1.52	0
Pput_0474	preprotein translocase subunit SecE	0	0	0	0	3.83	0
Pput_0521	short-chain dehydrogenase/reductase SDR	0	0	0	0	2.48	0
Pput_0525	formate dehydrogenase, gamma subunit	0	0	0	0	1.86	0
Pput_0579	SNARE associated Golgi protein	0	0	0	0	2.87	0
Pput_0595	ATP-NAD/AcoX kinase	0	0	0	0	1.13	0
Pput_0604	NUDIX hydrolase	0	0	0	0	2.37	0
Pput_0612	polypeptide-transport-associated domain-containing protein	0	0	0	0	0.68	0
Pput_0703	diguanylate cyclase/phosphodiesterase with PAS/PAC and GAF sensor(s)	0	0	0	0	0.96	0
Pput_0762	HemK family modification methylase	0	0	0	0	2.42	0
Pput_0824	hypothetical protein Pput_0824	0	0	0	0	1.69	0
Pput_0825	hypothetical protein Pput_0825	0	0	0	0	4.45	0
Pput_0880	radical SAM protein	0	0	0	0	1.52	0
Pput_0990	sigma 54 modulation protein/ribosomal protein S30EA	40.70	0	0	0	476.69	39.49
Pput_1001	hypothetical protein Pput_1001	0	0	0	0	7.60	0
Pput_1002	BolA family protein	0	0	0	0	6.48	0
Pput_1022	cold-shock DNA-binding domain-containing protein	72.04	122.37	0	129.52	13,347.67	140.03
Pput_1123	bacterioferritin	142.83	697.58	512.33	339.68	4,162.12	536.87
Pput_1139	cold-shock DNA-binding domain-containing protein	0	0	0	0	187.38	9.56
Pput_1164	OmpA/MotB domain-containing protein	0	0	0	0	1.86	0
Pput_1213	4'-phosphopantetheinyl transferase	0	0	0	0	1.75	0
Pput_1233	hypothetical protein Pput_1233	0	0	0	0	1.97	0
Pput_1298	hypothetical protein Pput_1298	0	0	0	0	4.62	0
Pput_1444	magnesium transporter	0	0	0	0	1.18	0
Pput_1471	flagellar basal body L-ring protein	0	0	0	0	1.91	0
Pput_1472	flagellar basal body P-ring protein	0	0	0	0	1.86	0
Pput_1496	two component, sigma54 specific, Fis family transcriptional regulator	0	0	0	0	1.91	0
Pput_1509	flagellar motor switch protein	0	0	0	0	7.77	0
Pput_1524	flagellar biosynthesis regulator FlhF	0	0	0	0	2.42	0
Pput_1577	nucleoside-binding outer membrane protein-like protein	0	0	0	0	2.42	0
Pput_1631	2Fe-2S iron-sulfur cluster binding domain-containing protein	0	0	0	0	2.14	0
Pput_1640	diaminobutyrate--2-oxoglutarate aminotransferase	0	0	0	0	5.69	0
Pput_1649	helix-turn-helix domain-containing protein	0	0	0	0	3.32	0
Pput_1676	amino acid adenylation domain-containing protein	0	0	0	0	0.23	0
Pput_1677	amino acid adenylation domain-containing protein	0	0	0	0	2.76	0
Pput_1680	amino acid adenylation domain-containing protein	0	0	0	0	0.23	0
Pput_1700	phosphohistidine phosphatase, SixA	0	0	0	0	7.43	0
Pput_1720	MltD domain-containing protein	0	0	0	0	1.24	0
Pput_1750	hypothetical protein Pput_1750	0	0	0	0	1.01	0
Pput_1789	hypothetical protein Pput_1789	0	0	0	0	10.59	0
Pput_1798	glyoxalase/bleomycin resistance protein/dioxygenase	0	0	0	0	3.94	0
Pput_1882	ABC transporter related	0	0	0	0	2.03	0
Pput_1928	hypothetical protein Pput_1928	0	0	0	0	4.90	0
Pput_1973	lysine/ornithine N-monooxygenase-like protein	0	0	0	0	2.20	0
Pput_2037	enoyl-CoA hydratase/isomerase	0	0	0	0	1.63	0
Pput_2043	aldehyde dehydrogenase	0	0	0	0	0.84	0
Pput_2072	major facilitator transporter	0	0	0	0	1.35	0
Pput_2073	nitroreductase	0	0	0	0	2.65	0
Pput_2094	alkylhydroperoxidase	0	0	0	0	8.05	0
Pput_2151	hypothetical protein Pput_2151	0	0	0	0	5.01	0
Pput_2197	LysR family transcriptional regulator	0	0	0	0	2.08	0
Pput_2224	MarR family transcriptional regulator	0	0	0	0	2.76	0
Pput_2274	peptidase U32	0	0	0	0	1.91	0
Pput_2319	hypothetical protein Pput_2319	0	0	0	0	2.03	0
Pput_2352	precorrin-4 C11-methyltransferase	0	0	0	0	1.69	0
Pput_2401	aldehyde dehydrogenase	0	0	0	0	1.24	0
Pput_2420	putative GTP cyclohydrolase	0	0	0	0	1.30	0
Pput_2649	sigma-54 dependent trancsriptional regulator	0	0	0	0	0.79	0
Pput_2651	3-hydroxybutyrate dehydrogenase	0	0	0	0	6.03	0
Pput_2665	acyl-CoA dehydrogenase domain-containing protein	0	0	0	0	0.68	0
Pput_2722	hypothetical protein Pput_2722	0	0	0	0	8.50	0
Pput_2725	meta-pathway phenol degradation-like protein	0	0	0	0	1.35	0
Pput_2803	catalase domain-containing protein	0	0	0	0	1.86	0
Pput_2810	TetR family transcriptional regulator	0	0	0	0	4.45	0
Pput_2814	hypothetical protein Pput_2814	0	0	0	0	4.06	0
Pput_2888	4-hydroxy-2-ketovalerate aldolase	4.99	133.98	130.30	45.45	5,702.54	870.44
Pput_2892	TetR family transcriptional regulator	0	0	0	0	3.21	0
Pput_2968	RND efflux transporter	0	0	0	0	0.45	0
Pput_3041	short chain dehydrogenase	0	0	0	0	2.20	0
Pput_3042	hypothetical protein Pput_3042	0	0	0	0	2.93	0
Pput_3048	amidohydrolase	0	0	0	0	1.01	0
Pput_3058	aldehyde dehydrogenase	0	0	0	0	0.84	0
Pput_3116	beta-ketoadipate pathway transcription regulator	0	0	0	0	1.58	0

Pput_3118	fumarate reductase/succinate dehydrogenase flavoprotein domain-containing protei	0	0	0	0	1.01	0
Pput_3121	major facilitator transporter	0	0	0	0	0.90	0
Pput_3215	short-chain dehydrogenase/reductase SDR	0	0	0	0	3.49	0
Pput_3227	cold-shock DNA-binding domain-containing protein	41.32	0	0	0	5,624.36	332.73
Pput_3229	hypothetical protein Pput_3229	0	0	0	0	7.88	0
Pput_3250	LysR family transcriptional regulator	0	0	0	0	1.35	0
Pput_3274	GCN5-related N-acetyltransferase	0	0	0	0	3.55	0
Pput_3308	hypothetical protein Pput_3308	0	0	0	0	1.63	0
Pput_3351	peptidase	0	0	0	0	4.79	0
Pput_3414	hypothetical protein Pput_3414	0	0	0	0	3.10	0
Pput_3466	histone family protein DNA-binding protein	########	177.74	325.76	387.58	#########	########
Pput_3534	hypothetical protein Pput_3534	0	0	0	0	5.41	0
Pput_3547	hypothetical protein Pput_3547	0	0	0	0	6.93	0
Pput_3555	ProQ activator of osmoprotectant transporter ProP	0	0	0	0	125.93	10.60
Pput_3586	LolC/E family lipoprotein releasing system, transmembrane protein	0	0	0	0	1.35	0
Pput_3680	MerR family transcriptional regulator	0	0	0	0	2.59	0
Pput_3703	acyl-CoA dehydrogenase domain-containing protein	0	0	0	0	1.63	0
Pput_3716	hypothetical protein Pput_3716	0	0	0	0	2.98	0
Pput_3815	biopolymer transport protein ExbD/TolR	0	0	0	0	3.21	0
Pput_3832	hypothetical protein Pput_3832	0	0	0	0	0.68	0
Pput_3882	hypothetical protein Pput_3882	0	0	0	0	2.42	0
Pput_3963	5-methylaminomethyl-2-thiouridine methyltransferase	0	0	0	0	0.62	0
Pput_4002	hypothetical protein Pput_4002	0	0	0	0	9.91	0
Pput_4007	hypothetical protein Pput_4007	0	0	0	0	2.59	0
Pput_4036	MarR family transcriptional regulator	0	0	0	0	2.93	0
Pput_4202	cold-shock DNA-binding domain-containing protein	0	0	0	0	49.34	0
Pput_4272	filamentous haemagglutinin outer membrane protein	0	0	0	0	0.34	0
Pput_4371	MscS mechanosensitive ion channel	0	0	0	0	1.46	0
Pput_4431	molybdopterin biosynthesis MoaE protein	0	0	0	0	8.95	0
Pput_4432	molybdopterin converting factor, subunit 1	0	0	0	0	6.03	0
Pput_4495	HopJ type III effector protein	0	0	0	0	12.05	0
Pput_4533	OmpA/MotB domain-containing protein	0	0	0	0	4.11	0
Pput_4645	putative periplasmic ligand-binding sensor protein	0	0	0	0	1.75	0
Pput_4662	hypothetical protein Pput_4662	0	0	0	0	3.60	0
Pput_4701	hypothetical protein Pput_4701	0	0	0	0	3.27	0
Pput_4704	precorrin-3B C17-methyltransferase	0	0	0	0	1.13	0
Pput_4876	hypothetical protein Pput_4876	0	0	0	0	2.87	0
Pput_4884	putative polyhydroxyalkanoic acid system protein	0	0	0	0	12.05	0
Pput_4890	twin arginine translocase protein A	0	0	0	0	7.72	0
Pput_4924	hypothetical protein Pput_4924	0	0	0	0	3.04	0
Pput_4927	glutaredoxin 3	0	0	0	0	17.85	0
Pput_4993	TetR family transcriptional regulator	0	0	0	0	1.80	0
Pput_5032	hypothetical protein Pput_5032	0	0	0	0	0.73	0
Pput_5097	type II secretion system protein E	0	0	0	0	0.68	0
Pput_5145	hypothetical protein Pput_5145	0	0	0	0	4.00	0
Pput_5197	phosphomannomutase	0	0	0	0	3.60	0
Pput_5213	hypothetical protein Pput_5213	0	0	0	0	18.02	0
Pput_5216	biopolymer transport protein ExbD	0	0	0	0	3.27	0
Pput_5229	PAS/PAC sensor signal transduction histidine kinase	0	0	0	0	0.90	0
Pput_5241	hypothetical protein Pput_5241	0	0	0	0	10.81	0

p-cumate

Pput name	Protein name	Protein content (/10000 mol%)					
		G	T	E	B	Cy	Cu
Pput_0022	CzcA family heavy metal efflux protein	0	0	0	0	0	0.70
Pput_0040	cation diffusion facilitator family transporter	0	0	0	0	0	2.58
Pput_0099	LysR family transcriptional regulator	0	0	0	0	0	8.16
Pput_0100	protein of unknown function DUF883, ElaB	0	0	0	0	0	39.28
Pput_0135	ABC transporter related	0	0	0	0	0	2.02
Pput_0179	TonB-dependent siderophore receptor	0	0	0	0	0	0.56
Pput_0264	hypothetical protein Pput_0264	0	0	0	0	0	4.88
Pput_0508	ribosomal protein L36	0	0	0	0	0	11.86
Pput_0573	copper resistance B precursor	0	0	0	0	0	1.67
Pput_0574	CopA family copper resistance protein	0	0	0	0	0	0.77
Pput_0633	hypothetical protein Pput_0633	0	0	0	0	0	2.72
Pput_0656	ABC transporter related	0	0	0	0	0	7.74
Pput_0674	type II secretion system protein	0	0	0	0	0	1.26
Pput_0675	fimbrial protein pilin	0	0	0	0	0	6.49
Pput_0681	hypothetical protein Pput_0681	0	0	0	0	0	4.05
Pput_0728	hypothetical protein Pput_0728	0	0	0	0	0	3.14
Pput_0749	RND efflux system outer membrane lipoprotein	0	0	0	0	0	0.98
Pput_0813	signaling modulator of AmpD, AmpE	0	0	0	0	0	2.51
Pput_0919	binding-protein-dependent transport systems inner membrane component	0	0	0	0	0	1.67
Pput_0922	outer membrane porin	0	0	0	0	0	1.67
Pput_0956	chromosome replication initiation inhibitor protein	0	0	0	0	0	1.53
Pput_0960	regulatory protein, ArsR	0	0	0	0	0	5.72
Pput_1076	CMP/dCMP deaminase, zinc-binding	0	0	0	0	0	5.86
Pput_1079	hypothetical protein Pput_1079	0	0	0	0	0	10.12
Pput_1110	polar amino acid ABC transporter, inner membrane subunit	0	0	0	0	0	4.74
Pput_1114	glycerol-3-phosphate dehydrogenase	0	0	0	0	0	0.98
Pput_1142	ICC-like protein putative phosphoesterase	0	0	0	0	0	3.77
Pput_1173	leucine/isoleucine/valine transporter permease subunit	0	0	0	0	0	1.12
Pput_1178	diguanylate cyclase/phosphodiesterase	0	0	0	0	0	0.63
Pput_1195	yecA family protein	0	0	0	0	0	2.86
Pput_1212	integral membrane sensor signal transduction histidine kinase	0	0	0	0	0	0.91
Pput_1293	AsnC family transcriptional regulator	0	0	0	0	0	4.53
Pput_1322	hypothetical protein Pput_1322	0	0	0	0	2.59	14.16
Pput_1348	ABC transporter related	0	0	0	0	0	3.14
Pput_1382	hypothetical protein Pput_1382	0	0	0	0	0	8.37
Pput_1414	chromosome segregation and condensation protein ScpA	0	0	0	0	0	1.74
Pput_1430	polar amino acid ABC transporter, inner membrane subunit	0	0	0	0	0	3.70
Pput_1503	anti-sigma-factor antagonist	0	0	0	0	0	5.72
Pput_1628	redoxin domain-containing protein	0	0	0	0	0	1.88
Pput_1639	integral membrane sensor signal transduction histidine kinase	0	0	0	0	0	1.12
Pput_1732	bacteriophage CI repressor	0	0	0	0	0	11.65
Pput_1757	LysR family transcriptional regulator	0	0	0	0	0	34.47
Pput_1840	sulfur transfer complex subunit TusD	0	0	0	0	0	6.63
Pput_1868	Na+/H+ antiporter NhaA	0	0	0	0	0	1.67
Pput_1872	methyl-accepting chemotaxis sensory transducer	0	0	0	0	0	0.70
Pput_1910	aminoglycoside phosphotransferase	0	0	0	0	0	1.33
Pput_1930	MerR family transcriptional regulator	0	0	0	0	0	6.07
Pput_1983	hypothetical protein Pput_1983	0	0	0	0	0	8.93
Pput_2052	LysR family transcriptional regulator	0	0	0	0	0	3.70
Pput_2131	ABC transporter related	0	0	0	0	0	1.67
Pput_2214	LysR family transcriptional regulator	0	0	0	0	0	2.51
Pput_2471	CRP/FNR family transcriptional regulator	0	0	0	0	0	1.67
Pput_2493	peptidase S14, ClpP	0	0	0	0	0	2.86
Pput_2526	ornithine cyclodeaminase	0	0	0	0	0	1.67
Pput_2607	helix-turn-helix domain-containing protein	0	0	0	0	0	1.67
Pput_2687	hypothetical protein Pput_2687	0	0	0	0	0	5.30
Pput_2816	hypothetical protein Pput_2816	0	0	0	0	0	5.58
Pput_2894	Rieske (2Fe-2S) domain-containing protein	0	0	0	0	0	31.54
Pput_2950	DNA-directed DNA polymerase	0	0	0	0	0	1.12
Pput_3002	ABC-type branched-chain amino acid transport systems periplasmic component-like protein	0	0	0	0	0	1.53
Pput_3011	protein of unknown function DUF861, cupin_3	0	0	0	0	0	17.51
Pput_3038	integral membrane sensor signal transduction histidine kinase	0	0	0	0	0	1.53
Pput_3071	DNA-binding transcriptional regulator DsdC	0	0	0	0	0	2.30
Pput_3119	NIPSNAP family protein	0	0	0	0	0	7.47
Pput_3152	amino acid adenylation domain-containing protein	0	0	0	0	0	1.05
Pput_3160	methyltransferase type 12	0	0	0	0	0	2.37
Pput_3330	AraC family transcriptional regulator	0	0	0	0	0	1.95
Pput_3393	hypothetical protein Pput_3393	0	0	0	0	0	1.95
Pput_3486	hypothetical protein Pput_3486	0	0	0	0	0	2.09
Pput_3488	LysR family transcriptional regulator	0	0	0	0	0	1.74
Pput_3548	protein of unknown function DUF883, ElaB	0	0	0	0	0	5.86
Pput_3611	MOSC domain-containing protein	0	0	0	0	0	1.88
Pput_3629	pseudouridine synthase	0	0	0	0	0	1.60
Pput_3689	HAD family hydrolase	0	0	0	0	0	0.70
Pput_3743	short-chain dehydrogenase/reductase SDR	0	0	0	0	1.75	10.88
Pput_3855	OsmC family protein	1,136.74	845.85	1,209.26	611.42	1,668.43	8,426.05
Pput_3861	LysR family transcriptional regulator	0	0	0	0	0	1.67
Pput_3992	GntR family transcriptional regulator	0	0	0	0	0	5.37
Pput_4089	CinA domain-containing protein	0	0	0	0	0	6.07
Pput_4198	glycosyl transferase family protein	0	0	0	0	0.68	3.42
Pput_4242	HicB family protein	0	0	0	0	0	9.14
Pput_4247	hypothetical protein Pput_4247	0	0	0	0	0	1.53
Pput_4254	sodium/hydrogen exchanger	0	0	0	0	0	1.26
Pput_4255	thioesterase superfamily protein	0	0	0	0	0	4.05
Pput_4274	hypothetical protein Pput_4274	0	0	0	0	0	8.23
Pput_4438	hypothetical protein Pput_4438	0	0	0	0	0	0.98
Pput_4449	hypothetical protein Pput_4449	0	0	0	0	0	6.21
Pput_4464	helix-turn-helix domain-containing protein	0	0	0	0	6.36	88.82
Pput_4483	hypothetical protein Pput_4483	0	0	0	0	0	0.63
Pput_4555	sugar fermentation stimulation protein A	0	0	0	0	0	2.16
Pput_4572	transport-associated	0	0	0	0	0	31.61
Pput_4600	GntR domain-containing protein	0	0	0	0	1.46	11.72

Pput_4601	L-lactate transport	0	0	0	0	0	12.14
Pput_4603	D-lactate dehydrogenase (cytochrome)	2.81	0	0	0	0	30.42
Pput_4657	integral membrane sensor signal transduction histidine kinase	0	0	0	0	0	1.05
Pput_4668	hypothetical protein Pput_4668	0	0	0	0	0	5.51
Pput_4677	hypothetical protein Pput_4677	0	0	0	0	0	11.93
Pput_4706	precorrin-8X methylmutase	0	0	0	0	0	2.37
Pput_4818	sodium/proline symporter	0	0	0	0	0	4.05
Pput_4961	primosome assembly protein PriA	0	0	0	0	0	0.63
Pput_5020	hypothetical protein Pput_5020	0	0	0	0	0	3.21
Pput_5064	hypothetical protein Pput_5064	0	0	0	0	0	4.88
Pput_5132	nucleoside diphosphate kinase regulator	0	0	0	0	0	4.12
Pput_5143	nitrogen regulatory protein P-II	99.02	66.99	74.04	52.30	239.36	1,187.26
Pput_5165	isochorismatase hydrolase	0	0	0	0	0	5.86
Pput_5171	LysR family transcriptional regulator	0	0	0	0	0	1.60
Pput_5208	glutamate--putrescine ligase	0	0	0	0	0	1.05
Pput_5222	histone family protein DNA-binding protein	164.35	795.83	583.41	838.20	6,815.03	#########
Pput_5253	GCN5-related N-acetyltransferase	0	0	0	0	0	5.93