

Supplemental Table 2. Unique or additional proteins in *T. kodakaraensis* in comparison among the order Thermococcales

DNA metabolism	
TK0096	DNA replication licensing factor, MCM2/3/5 family [TKV1]
TK0582	DNA polymerase sliding clamp (proliferating cell nuclear antigen) [TKV3]
TK1361	DNA replication licensing factor, MCM2/3/5 family [TKV4]
TK0447	Hypothetical protein, conserved, RAMP superfamily
TK0794	Putative 5-methylcytosine restriction system, catalytic subunit
TK0795	Putative 5-methylcytosine restriction system, GTPase subunit
TK1009	Putative 5-methylcytosine restriction system, GTPase subunit
TK1010	Putative 5-methylcytosine restriction system, catalytic subunit
TK1158	Predicted endonuclease-methyltransferase fusion protein
TK1460	Predicted endonuclease-methyltransferase fusion protein
Transcription	
TK2287	Transcription initiation factor IIB
Translation	
TK0773	Predicted ATP-dependent endonuclease, OLD family
TK1395	Predicted ATP-dependent endonuclease, OLD family
TK1970	Probable tRNA/rRNA methyltransferase, SpoU family
TK0306	DEAD/DEAH box RNA helicase
Cellular processes	
TK2137	ATPase involved in chromosome partitioning, ParA/MinD family
TK0039	Archaeal flagellin B2 precursor
TK0156	Methyl-accepting chemotaxis protein
TK0638	Methyl-accepting chemotaxis protein
TK0630	Methyl-accepting chemotaxis protein
TK1055	Peroxiredoxin, bacterioferritin comigratory protein homolog, AhpC/TSA family
Protein fate	
TK0678	Chaperonin, alpha subunit (thermosome, alpha subunit)
TK1121	Prefoldin, alpha subunit
TK1122	Prefoldin, beta subunit
TK1850	FKBP-type peptidyl-prolyl cis-trans isomerase
TK0290	Pyruvate-formate lyase-activating enzyme
TK0819	Peptide methionine sulfoxide reductase
TK0961	Hydrogenase expression/formation protein HypE
Regulatory functions	
TK0017	Predicted transcription regulator, SpoVT/AbrB family
TK0086	Predicted transcription regulator, ArsR family [TKV1]
TK0094	Transcription regulator, SpoVT/AbrB family [TKV1]
TK0168	Predicted transcription regulator, Lrp/AsnC family
TK0405	Predicted transcription regulator, SpoVT/AbrB family [TKV2]
TK0406	Predicted transcription regulator, SpoVT/AbrB family [TKV2]
TK0559	Transcription regulator, ArsR family
TK0697	Predicted transcription regulator, containing DNA-binding HTH domain
TK0770	Transcription regulator, PadR-like family
TK0834	Transcription regulator, Lrp/AsnC family
TK0888	Transcription regulator, SpoVT/AbrB family
TK1076	Transcription regulator, SpoVT/AbrB family
TK1372	Predicted transcription regulator, SpoVT/AbrB family [TKV4]
TK1815	Transcription regulator, CopG/RepA family
TK2107	Transcription regulator, PadR-like family
TK2190	Predicted transcription regulator, ArsR family
TK2261	Transcription regulator, SpoVT/AbrB family
TK1435	Nitrogen regulatory protein P-II
Cell envelope	
TK0219	Sugar-phosphate nucleotidyltransferase
TK1293	Putative membrane-bound dolichyl-phosphate-mannose-protein mannosyltransferase
TK1713	Glycosyltransferase, family 4
TK1719	Capsular polysaccharide biosynthesis protein
TK1720	Dolichol-phosphate mannosyltransferase
TK1721	Glycosyltransferase, family 4
TK1723	Glycosyltransferase, family 4
TK2255	Bifunctional phosphatase/dolichol-phosphate glucosyltransferase
TK0164	S-layer-like array protein
TK1589	S-layer-like array protein
Central intermediary metabolism	
TK0076	Subtilisin-like serine protease precursor [TKV1]
TK1675	Subtilisin-like serine protease precursor
TK1782	Serine protease inhibitor Serpin homolog
TK0977	Pullulanase type II, GH13 family
TK1765	Chitinase, containing dual catalytic domains
TK1398	Glycerophosphoryl diester phosphodiesterase
Amino acid metabolism	
TK0240	Arginase

Nucleotide metabolism

TK0430	Inosine 5'-monophosphate cyclohydrolase
TK0432	Phosphoribosylaminoimidazolesuccinocarboxamide synthase
TK1640	Nucleotide pyrophosphohydrolase
TK1318	Thymidine kinase
TK1479	Uridine phosphorylase

Cofactor and prosthetic group metabolism

TK1324	4-Hydroxybenzoate octaprenyltransferase
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Energy metabolism

TK1777	Phosphopentomutase
TK2104	Deoxyribose-phosphate aldolase
TK0289	Pyruvate-formate lyase
TK0072	Tungsten-containing oxidoreductase
TK0370	NAD(P)H-flavin oxidoreductase
TK0740	4Fe-4S cluster-binding protein
TK1062	Rubryerythrin-related protein
TK1481	NADH:polysulfide oxidoreductase
TK1612	Glutamate synthase beta chain-related oxidoreductase, containing 2Fe-2S and 4Fe-4S clusters
TK1613	NADH:ubiquinone oxidoreductase, NADH-binding subunit F
TK1614	NADH:ubiquinone oxidoreductase, subunit E
TK2012	Ferredoxin 3
TK2073	4Fe-4S cluster-binding protein
TK2074	Glutamate synthase beta chain-related oxidoreductase
TK2076	Probable formate dehydrogenase, alpha subunit
TK2094	Rubryerythrin-related protein
TK2095	Rubryerythrin-related protein

Transport and binding proteins

TK0761	Sodium/phosphate symporter
TK0570	ABC-type iron(III) transport system, periplasmic component
TK0571	ABC-type iron(III) transport system, permease component
TK0572	ABC-type iron(III) transport system, ATPase component
TK0621	Multisubunit sodium/hydrogen antiporter, predicted subunit
TK0622	Multisubunit sodium/hydrogen antiporter, predicted subunit
TK0627	NapA-type sodium/hydrogen antiporter
TK0706	ABC-type iron(III)-siderophore transport system, periplasmic component fused to N-terminal uncharacterized domain
TK0707	ABC-type iron(III)-siderophore transport system, permease component
TK0708	ABC-type iron(III)-siderophore transport system, ATPase component
TK0714	Iron(II) transport protein B
TK0715	Iron(II) transport protein A
TK0716	Iron(II) transport protein A
TK0717	ABC-type molybdate transport system, periplasmic component
TK0718	ABC-type molybdate transport system, permease component
TK0719	ABC-type molybdate transport system, ATPase component
TK1900	Calcium-gated potassium channel protein
TK0295	Predicted sodium-dependent transporter
TK0935	TRAP-type transporter, periplasmic component
TK0937	TRAP-type transporter, fused permease components
TK2079	Probable formate transporter
TK0684	Aromatic amino acid permease
TK1859	Probable lipoprotein releasing system, ATP-binding protein
TK2057	ABC-type dipeptide/oligopeptide transport system, permease component
TK2058	ABC-type dipeptide/oligopeptide transport system, permease component
TK0161	ABC-type multidrug transport system, ATPase component
TK0231	ABC-type multidrug transport system, permease component
TK0235	Predicted permease, major facilitator superfamily
TK0657	ABC-type transport system, probable periplasmic component
TK0726	ABC-type multidrug transport system, permease component
TK0833	Predicted permease, major facilitator superfamily
TK0942	ABC-type multidrug transport system, ATPase component
TK1579	ABC-type multidrug transport system, ATPase component
TK1588	ABC-type multidrug transport system, ATPase component
TK1858	Predicted permease, containing FtsX domains
TK1992	Permease, major facilitator superfamily
TK2053	ABC-type multidrug transport system, ATPase component
TK2054	ABC-type transport system, probable permease component
TK2055	ABC-type transport system, probable permease component
TK2161	ABC-type multidrug transport system, ATPase component

General function prediction only

TK0591	Predicted N-acetyltransferase, GNAT family [TKV3]
TK0394	Predicted ATPase, AAA superfamily [TKV2]
TK0776	Archaeal ATPase
TK1048	ATPase, RecA superfamily
TK1356	Predicted ATPase, AAA superfamily [TKV4]
TK1573	Archaeal ATPase, fused to C-terminal DUF234 domain
TK1822	Predicted ATPase, AAA superfamily
TK1910	ATPase, RecA superfamily
TK2202	Predicted ATPase, AAA superfamily
TK2220	Archaeal ATPase

TK0016	Predicted nucleic acid-binding protein, containing PIN domain
TK0066	Predicted nucleic acid-binding protein, containing PIN domain
TK0128	Predicted nucleic acid-binding protein, containing PIN domain
TK0137	Predicted nucleic acid-binding protein, containing PIN domain
TK0191	Predicted nucleic acid-binding protein, containing PIN domain
TK0212	Predicted nucleic acid-binding protein, containing PIN domain
TK0334	Predicted nucleic acid-binding protein, containing PIN domain
TK0343	Predicted nucleic acid-binding protein, containing PIN domain
TK0542	Predicted nucleic acid-binding protein, containing PIN domain
TK0889	Predicted nucleic acid-binding protein, containing PIN domain
TK0910	Predicted nucleic acid-binding protein, containing PIN domain
TK0924	Predicted nucleic acid-binding protein, containing PIN domain
TK1014	Predicted nucleic acid-binding protein, containing PIN domain
TK1027	Predicted nucleic acid-binding protein, containing PIN domain
TK1343	Predicted nucleic acid-binding protein, containing PIN domain [TKV4]
TK1644	Predicted nucleic acid-binding protein, containing PIN domain
TK1995	Predicted nucleic acid-binding protein, containing PIN domain
TK2005	Predicted nucleic acid-binding protein, containing PIN domain
TK2067	Predicted nucleic acid-binding protein, containing PIN domain
TK2155	Predicted nucleic acid-binding protein, containing PIN domain
TK2262	Predicted nucleic acid-binding protein, containing PIN domain
TK2306	Predicted nucleic acid-binding protein, containing PIN domain
TK0029	Zinc-dependent hydrolase, glyoxylase II family
TK0303	Membrane-bound metal-dependent hydrolase
TK0312	Metal-dependent phosphohydrolase, HD superfamily
TK0365	Membrane-bound phosphoesterase, PAP2 superfamily
TK0574	Metallophosphoesterase, calcineurin superfamily
TK0758	Metal-dependent amidohydrolase
TK0968	Predicted hydrolase, HAD superfamily
TK1137	Acid phosphatase SurE homolog
TK1944	Predicted metal-dependent phosphohydrolase, HD superfamily
TK2062	Metallophosphoesterase, calcineurin superfamily
TK2166	ArgE/DapE-related deacylase
TK0234	Predicted SAM-dependent methyltransferase
TK0063	Nucleotidyltransferase, fused to N-terminal DNA-binding domain
TK0341	Nucleotidyltransferase, fused to N-terminal DNA-binding domain
TK0674	Nucleotidyltransferase
TK0962	Nucleotidyltransferase
TK1128	Nucleotidyltransferase
TK1476	Nucleotidyltransferase
TK1994	Nucleotidyltransferase
TK0187	Predicted glutamine amidotransferase, class I
TK1843	Carbohydrate/pyrimidine kinase, PfkB family

Unknown function

TK0200	Phosphoenolpyruvate synthetase-related protein
TK0228	Met-10+ like protein (C-terminus)
TK0831	Peroxioredoxin-related protein (C-terminus)
TK1189	Bacitracin resistance protein BacA homolog
TK1382	Dopamine beta hydroxylase-related protein, containing DOMON domain
TK1563	Phospholipase D-related protein
TK1893	Glycerate kinase-related protein, containing MOFRL domain (C-terminus)
TK1974	Carboxymuconolactone decarboxylase-related protein
TK2181	Predicted calcium-binding protein
TK2264	Predicted calcium-binding protein

Mobile elements

TK0298	Probable transposase
TK0931	Probable transposase
TK0932	IS200-like transposase
TK0104	Probable integrase/recombinase
TK0105	SSV1 integrase homolog, N-fragment
TK0381	SSV1 integrase homolog, C-fragment
TK0421	Predicted integrase, N-fragment
TK0614	SSV1 integrase homolog, C-fragment
TK1342	Predicted integrase, C-fragment
TK1378	Predicted integrase, N-fragment

Hypothetical proteins, conserved

166 proteins	Hypothetical proteins, conserved
23 proteins	Hypothetical proteins, conserved [TKV1-4]

Hypothetical proteins

176 proteins	Hypothetical proteins
84 proteins	Hypothetical proteins [TKV1-4]

Frame shift, truncation, or fusion with unknown region

41 proteins