

Table S5. Genes related to sulfate reduction in *P. thermopropionicum*

Locus_tag	Annotation	Genes	COG	note
PTH_0235	ABC-type nitrate/sulfonate/bicarbonate transport systems, periplasmic compo	TauA	COG0715	
PTH_0236	ABC-type nitrate/sulfonate/bicarbonate transport system, ATPase component	TauB	COG1116	
PTH_0237	ABC-type nitrate/sulfonate/bicarbonate transport systemM permease compone	TauC	COG0600	
PTH_0238	Adenylylsulfate kinase and related kinases	CysC	COG0529	
PTH_0239	Succinate dehydrogenase/fumarate reductase, flavoprotein subunit	SdhA	COG1057	Adenylylsulfate reductase alpha
PTH_0240	Ferredoxin	-	COG1146	Adenylylsulfate reductase beta
PTH_0241	ATP sulfurylase (sulfate adenylyltransferase)	MET3	COG2046	
PTH_0242	Dissimilatory sulfite reductase (desulfovirdin), alpha and beta subunits	DsrA	COG2221	