

Table S2.TPI-GAPDH subcellular localization predictions

Organism	GenBank accession number / reference	TargetP (Reliability class)	iPSORT	Predotar	PredSL
<i>Paulinella chromatophora</i> M0880/a	JQ783118-JQ783119	M (2)	Mitochondrial Transit Peptide	mitochondrial	mitochondrion
<i>Phaeodactylum tricorutum</i>	AAF34330	M (1)	Mitochondrial Transit Peptide	possibly mitochondrial	mitochondrion
<i>Odontella sinensis</i>	AAF34328	M (2)	Mitochondrial Transit Peptide	mitochondrial	mitochondrion
<i>Phytophthora infestans</i>	Liaud et al. 2000* (Original: X64537)	M (3)	Mitochondrial Transit Peptide	possibly mitochondrial	mitochondrion
<i>Blastocystis hominis</i>	CBK20353	M (3)	Mitochondrial Transit Peptide	mitochondrial	mitochondrion
<i>Ectocarpus siliculosus</i> (revised)**	See main text	M (2)	Mitochondrial Transit Peptide	possibly mitochondrial	mitochondrion
<i>Thecamonas trahens</i>	ADVD01000324 (WGS sequence contig)	M (2)	Mitochondrial Transit Peptide	mitochondrial	mitochondrion
<i>Achlya bisexualis</i>	AAF44720	M (3)	Mitochondrial Transit Peptide	mitochondrial	mitochondrion
<i>Hyaloperonospora arabidopsidis</i>	ABWE01000065 (WGS sequence contig)	M (2)	Mitochondrial Transit Peptide	mitochondrial	mitochondrion
<i>Saprolegnia parasitica</i>	ADCG01002396 (WGS sequence contig)	M (1)	Mitochondrial Transit Peptide	possibly mitochondrial	mitochondrion
<i>Pythium ultimum</i>	ADOS01000576 (WGS sequence contig)	M (3)	Mitochondrial Transit Peptide	mitochondrial	mitochondrion

* Liaud, M. F., C. Lichtle, K. Apt, W. Martin, and R. Cerff. 2000. Compartment-specific isoforms of TPI and GAPDH are imported into diatom mitochondria as a fusion protein: evidence in favor of a mitochondrial origin of the eukaryotic glycolytic pathway. *Mol Biol Evol* 17:213-223.

** Alternative protein model postulated in this study, See main text for details.