Data Sheet (Cat.No.TMPY-02602)

TargetMol

PTPMT1 Protein, Human, Recombinant (His)

General Information

Synonyms:	protein tyrosine phosphatase, mitochondrial 1;MOSP;FLJ46081;PLIP;DUSP23;PNAS-129
Protein Construction:	A DNA sequence encoding the human PTPMT1 isoform 1 (Q8WUK0-1) (Lys 28-Thr 201) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	Q8WUK0-1
Molecular Weight:	21.7 kDa (predicted); 20 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to cleave pNPP. The specific activity is >200 pmoles/min/μg.
Purity:	> 94 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, 10% glycerol, 1 mM DTT, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

PTPMT1 (PTP localized to the Mitochondrion 1) is a member of the protein tyrosine phosphatase superfamily that is localized exclusively to the mitochondrion. It has been recently reported that PTPMT1 dephosphorylates phosphatidylglycerol phosphate, an essential intermediate of cardiolipin biosynthesis. PTPMT1 deficiency in mouse embryonic fibroblasts compromises mitochondrial respiration and results in abnormal mitochondrial morphology. Lipid analysis of PTPMT1-deficient fibroblasts reveals an accumulation of PGP along with a

concomitant decrease in phosphatidylglycerol. Modulation of mitochondrial ATP synthesis by PTPMT1 suggests a novel approach for the treatment of pancreatic cancers, which represent some of the deadliest forms of human tumors. The gluttony of cancer cells for energy is well established, and with the development of a modulator of expression, one may hope that we could also achieve the synthetic induction of PTPMT1 expression. It would then be expected that this effect would attenuate, if not abolish, the growth of pancreas-derived tumor cells and support the establishment of a novel regimen for pancreatic cancers.

Reference

Zhang J,et al. (2011) Mitochondrial phosphatase PTPMT1 is essential for cardiolipin biosynthesis. Cell Metab. 13 (6): 690-700.

Boisclair Y,et al. (2005) Firing up mitochondrial activities with PTPMT1. Mol Cell. 19 (3): 291-2.

Xiao J,et al. (2011) Structural and functional analysis of PTPMT1, a phosphatase required for cardiolipin synthesis. Proc Natl Acad Sci. 108 (29): 11860-5.

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