SANTA CRUZ BIOTECHNOLOGY, INC.

PTPMT1 (B-12): sc-390947

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Protein tyrosine phosphatases, or PTPs, are type I transmembrane proteins, membrane associated proteins or proteins localized in nuclei. Examples of transmembrane PTPs are LAR, PTPα, PTPβ, PTPγ, PTPδ, PTPε, PTPω, PTPκ and PTPμ. Transmembrane PTPs play diverse roles in a variety of cellular processes during development and in adult tissues. PTPMT1 (protein tyrosine phosphatase mitochondrial 1), also known as MOSP or PLIP (phosphoinositide lipid phosphatase) and previously known as DUSP23, is a widely expressed PTP membrane protein with high expression levels in pancreatic β cells. PTPMT1 exclusively localizes to the matrix face of the inner membrane of the mitochondrion. It is responsible for dephosphorylating mitochondrial proteins and therefore plays a significant role in the production of ATP and secretion of Insulin. For its substrate, PTPMT1 displays a specific preference for the lipid signaling molecule, phosphatidylinositol 5-phosphate (PI(5)P).

REFERENCES

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2. Pagliarini, D.J., et al. 2004. A PTEN-like phosphatase with a novel substrate specificity. J. Biol. Chem. 279: 38590-38596.
3. Pagliarini, D.J., et al. 2005. Involvement of a mitochondrial phosphatase in the regulation of ATP production and Insulin secretion in pancreatic β cells. Mol. Cell 19: 197-207.
4. Boisclair, Y. and Tremblay, M.L. 2005. Firing up mitochondrial activities with PTPMT1. Mol. Cell 19: 291-292.
5. Pagliarini, D.J. and Dixon, J.E. 2006. Mitochondrial modulation: reversible phosphorylation takes center stage? Trends Biochem. Sci. 31: 26-34.
6. McBride, H.M., et al. 2006. Mitochondria: more than just a powerhouse. Curr. Biol. 16: R551-560.
7. Salvi, M., et al. 2007. Identification of the flavoprotein of succinate dehydrogenase and aconitase as *in vitro* mitochondrial substrates of Fgr tyrosine kinase. FEBS Lett. 581: 5579-5585.
8. Blero, D., et al. 2007. Phosphoinositide phosphatases in a network of signalling reactions. Pflugers Arch. 455: 31-44.
9. Lu, G., et al. 2007. A novel mitochondrial matrix serine/threonine protein phosphatase regulates the mitochondria permeability transition pore and is essential for cellular survival and development. Genes Dev. 21: 784-796.

CHROMOSOMAL LOCATION

Genetic locus: PTPMT1 (human) mapping to 11p11.2.

SOURCE

PTPMT1 (B-12) is a mouse monoclonal antibody raised against amino acids 87-127 mapping within an internal region of PTPMT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PTPMT1 (B-12) is recommended for detection of PTPMT1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PTPMT1 siRNA (h): sc-62906, PTPMT1 shRNA Plasmid (h): sc-62906-SH and PTPMT1 shRNA (h) Lentiviral Particles: sc-62906-V.

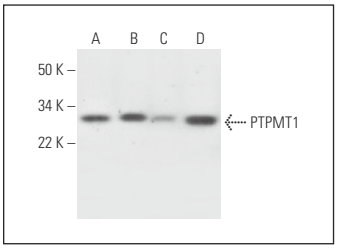
Molecular Weight of PTPMT1: 23 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Ramos cell lysate: sc-2216 or MCF7 whole cell lysate: sc-2206.

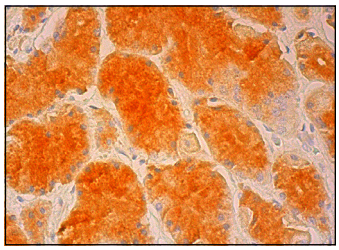
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



PTPMT1 (B-12): sc-390947. Western blot analysis of PTPMT1 expression in K-562 (**A**), Ramos (**B**), HISM (**C**) and MCF7 (**D**) whole cell lysates.



PTPMT1 (B-12): sc-390947. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lower stomach tissue showing cytoplasmic staining of glandular cells.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.