## SANTA CRUZ BIOTECHNOLOGY, INC.

# Mpi (E-4): sc-393477



#### BACKGROUND

Mpi (mannose phosphate isomerase), also known as PMI (phosphomannose isomerase) or PMI1, is a 423 amino acid zinc metalloenzyme belonging to the mannose-6-phosphate isomerase type 1 family, and is expressed in all tissues, more abundantly in heart, brain and skeletal muscle. A steady supply of D-mannose derivatives, which are required for most glycosylation reactions, is maintained by Mpi. Localized to the cytoplasm, Mpi utilizes zinc as a cofactor and catalyzes the interconversion of fructose-6-phosphate and mannose-6-phosphate. Mutations in the gene encoding Mpi lead to congenital disorder of glycosylation type 1B (CDG1B), also designated carbohydrate-deficient glycoprotein syndrome type lb (CDGS1B), which is characterized by protein-losing enteropathy. Congenital disorders of glycosylation are metabolic deficiencies in glycoprotein biosynthesis that usually results in severe mental and psychomotor retardation.

## REFERENCES

- Proudfoot, A.E., et al. 1996. *In vivo* and *in vitro* folding of a recombinant metalloenzyme, phosphomannose isomerase. Biochem. J. 318: 437-442.
- Jaeken, J., et al. 1998. Phosphomannose isomerase deficiency: a carbohydrate-deficient glycoprotein syndrome with hepatic-intestinal presentation. Am. J. Hum. Genet. 62: 1535-1539.
- Niehues, R., et al. 1998. Carbohydrate-deficient glycoprotein syndrome type lb. Phosphomannose isomerase deficiency and mannose therapy. J. Clin. Invest. 101: 1414-1420.

#### **CHROMOSOMAL LOCATION**

Genetic locus: MPI (human) mapping to 15q24.1; Mpi (mouse) mapping to 9 B.

#### SOURCE

Mpi (E-4) is a mouse monoclonal antibody raised against amino acids 1-164 mapping at the N-terminus of Mpi of human origin.

## PRODUCT

Each vial contains 200  $\mu g$   $lgG_{2a}$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Mpi (E-4) is available conjugated to agarose (sc-393477 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393477 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393477 PE), fluorescein (sc-393477 FITC), Alexa Fluor<sup>®</sup> 488 (sc-393477 AF488), Alexa Fluor<sup>®</sup> 546 (sc-393477 AF546), Alexa Fluor<sup>®</sup> 594 (sc-393477 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-393477 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-393477 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-393477 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

#### **STORAGE**

Store at 4° C, \*\*D0 NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

Mpi (E-4) is recommended for detection of Mpi of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Mpi (E-4) is also recommended for detection of Mpi in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Mpi siRNA (h): sc-90211, Mpi siRNA (m): sc-149531, Mpi shRNA Plasmid (h): sc-90211-SH, Mpi shRNA Plasmid (m): sc-149531-SH, Mpi shRNA (h) Lentiviral Particles: sc-90211-V and Mpi shRNA (m) Lentiviral Particles: sc-149531-V.

Molecular Weight of Mpi: 47 kDa.

Positive Controls: Mpi (h): 293T Lysate: sc-115944, RT-4 whole cell lysate: sc-364257 or human liver extract: sc-363766.

## **RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

#### DATA





Mpi (E-4): sc-393477. Western blot analysis of Mpi expression in RT-4 (A), A549 (B), SH-SY5Y (C), KNRK (D), C6 (E) and Neuro-2A (F) whole cell lysates.

Mpi (E-4): sc-393477. Western blot analysis of Mpi expression in non-transfected 293T: sc-117752 (**A**), human Mpi transfected 293T: sc-115944 (**B**), RT-4 (**C**) and U-251-MG (**D**) whole cell lysates and human liver tissue extract (**E**).

### **SELECT PRODUCT CITATIONS**

 Torretta, S., et al. 2020. D-mannose suppresses macrophage IL-1β production. Nat. Commun. 11: 6343.

### **RESEARCH USE**

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