

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 1b (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

1. Proudfoot, A.E., et al. 1996. *In vivo* and *in vitro* folding of a recombinant metalloenzyme, phosphomannose isomerase. *Biochem. J.* 318: 437-442.
2. Jaeken, J., et al. 1998. Phosphomannose isomerase deficiency: a carbohydrate-deficient glycoprotein syndrome with hepatic-intestinal presentation. *Am. J. Hum. Genet.* 62: 1535-1539.
3. Niehues, R., et al. 1998. Carbohydrate-deficient glycoprotein syndrome type 1b. 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 µg IgG_{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[®] 488 (sc-393477 AF488), Alexa Fluor[®] 546 (sc-393477 AF546), Alexa Fluor[®] 594 (sc-393477 AF594) or Alexa Fluor[®] 647 (sc-393477 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-393477 AF680) or Alexa Fluor[®] 790 (sc-393477 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

Store at 4° C, ****DO 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 µg per 100-500 µg 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.

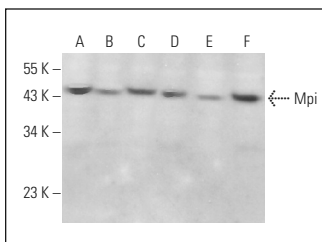
Molecular Weight of Mpi: 47 kDa.

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

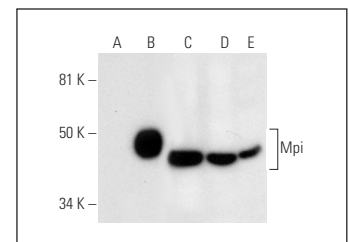
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-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.

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

1. 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.