SANTA CRUZ BIOTECHNOLOGY, INC.

MTMR5 (B-9): sc-393488

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Myotubularin and the myotubularin-related proteins (MTMR1-9) belong to a highly conserved family of eukaryotic phosphatases. They are protein tyrosine phosphatases that utilize inositol phospholipids, rather than phosphoproteins, as substrates. MTMR family members hydrolyze both phosphatidylinositol 3-phosphate (PtdIns3P) and PtdIns(3,5)P_2. MTMR2 interacts with MTMR5, an inactive family member that increases the enzymatic activity of MTMR2 and dictates its subcellular localization. Mutations in MTMR2 cause autosomal recessive Charcot-Marie-Tooth type 4B1 (CMT4B1), which is characterized by reduced nerve conduction velocities, focally folded myelin sheaths and demyelination. MTMR3 and MTMR4 can either interact with each other or self associate. MTMR6 regulates the activity of the calcium-activated potassium channel 3.1. MTMR9 regulates the activity of MTMR7 and MTMR8.

REFERENCES

1. Laporte, J., et al. 1997. Mutations in the MTM1 gene implicated in X-linked myotubular myopathy. ENMC International Consortium on Myotubular Myopathy. European Neuro-Muscular Center. Hum. Mol. Genet. 6: 1505-1511.
2. Blondeau, F., et al. 2000. Myotubularin, a phosphatase deficient in myotubular myopathy, acts on phosphatidylinositol 3-kinase and phosphatidylinositol 3-phosphate pathway. Hum. Mol. Genet. 9: 2223-2229.
3. Kim, S.A., et al. 2003. Regulation of myotubularin-related (MTMR)2 phosphatidylinositol phosphatase by MTMR5, a catalytically inactive phosphatase. Proc. Natl. Acad. Sci. USA 100: 4492-4497.

CHROMOSOMAL LOCATION

Genetic locus: SBF1 (human) mapping to 22q13.33; Sbf1 (mouse) mapping to 15 E3.

SOURCE

MTMR5 (B-9) is a mouse monoclonal antibody raised against amino acids 1667-1776 mapping near the C-terminus of MTMR5 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MTMR5 (B-9) is available conjugated to agarose (sc-393488 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393488 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393488 PE), fluorescein (sc-393488 FITC), Alexa Fluor® 488 (sc-393488 AF488), Alexa Fluor® 546 (sc-393488 AF546), Alexa Fluor® 594 (sc-393488 AF594) or Alexa Fluor® 647 (sc-393488 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393488 AF680) or Alexa Fluor® 790 (sc-393488 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

MTMR5 (B-9) is recommended for detection of MTMR5 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).

Suitable for use as control antibody for MTMR5 siRNA (h): sc-61092, MTMR5 siRNA (m): sc-63318, MTMR5 shRNA Plasmid (h): sc-61092-SH, MTMR5 shRNA Plasmid (m): sc-63318-SH, MTMR5 shRNA (h) Lentiviral Particles: sc-61092-V and MTMR5 shRNA (m) Lentiviral Particles: sc-63318-V.

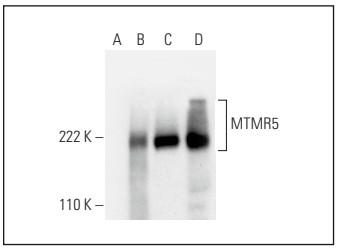
Molecular Weight of MTMR5: 208 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, MTMR5 (h2): 293T Lysate: sc-177577 or Jurkat nuclear extract: sc-2132.

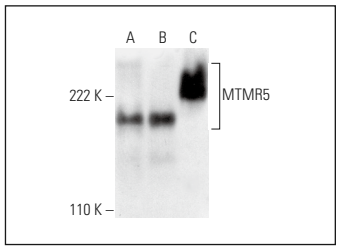
RECOMMENDED SUPPORT REAGENTS

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



MTMR5 (B-9): sc-393488. Western blot analysis of MTMR5 expression in non-transfected 293T: sc-117752 (**A**), human MTMR5 transfected 293T: sc-177577 (**B**) and Raji (**C**) whole cell lysates and mouse brain tissue extract (**D**).



MTMR5 (B-9): sc-393488. Western blot analysis of MTMR5 expression in Sol8 (**A**), HeLa (**B**) and Jurkat (**C**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Chua, J.P., et al. 2022. Myotubularin-related phosphatase 5 is a critical determinant of autophagy in neurons. Curr. Biol. 604: 144-150.
2. Mammel, A.E., et al. 2022. Distinct roles for the Charcot-Marie-Tooth disease-causing endosomal regulators MTMR5 and Mtmr13 in axon radial sorting and Schwann cell myelination. Hum. Mol. Genet. 31: 1216-1229.

RESEARCH USE

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