

MTMR2 (F-1): sc-365184

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 P2. 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

- Laporte, J., et al. 1997. Mutations in the MTM1 gene implicated in X-linked myotubular myopathy. *Hum. Mol. Genet.* 6: 1505-1511.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: MTMR2 (human) mapping to 11q21; Mtmr2 (mouse) mapping to 9 A1.

SOURCE

MTMR2 (F-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 47-77 near the N-terminus of MTMR2 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MTMR2 (F-1) is available conjugated to agarose (sc-365184 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365184 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365184 PE), fluorescein (sc-365184 FITC), Alexa Fluor® 488 (sc-365184 AF488), Alexa Fluor® 546 (sc-365184 AF546), Alexa Fluor® 594 (sc-365184 AF594) or Alexa Fluor® 647 (sc-365184 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365184 AF680) or Alexa Fluor® 790 (sc-365184 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365184 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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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

MTMR2 (F-1) is recommended for detection of MTMR2 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).

MTMR2 (F-1) is also recommended for detection of MTMR2 in additional species, including canine.

Suitable for use as control antibody for MTMR2 siRNA (h): sc-61086, MTMR2 siRNA (m): sc-61087, MTMR2 shRNA Plasmid (h): sc-61086-SH, MTMR2 shRNA Plasmid (m): sc-61087-SH, MTMR2 shRNA (h) Lentiviral Particles: sc-61086-V and MTMR2 shRNA (m) Lentiviral Particles: sc-61087-V.

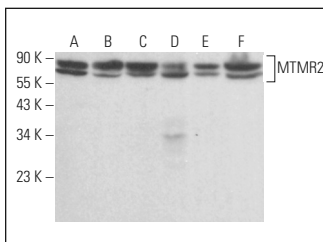
Molecular Weight of MTMR2: 73 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Caco-2 cell lysate: sc-2262 or 3T3-L1 cell lysate: sc-2243.

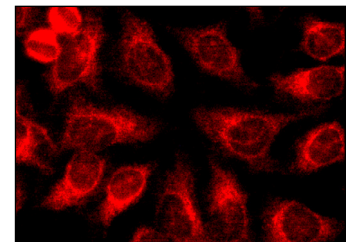
RECOMMENDED SUPPORT REAGENTS

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



MTMR2 (F-1): sc-365184. Western blot analysis of MTMR2 expression in HeLa (A), 3T3-L1 (B), Caco-2 (C), C6 (D), EOC 20 (E) and SK-N-SH (F) whole cell lysates.



MTMR2 (F-1): sc-365184. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Chua, J.P., et al. 2022. Myotubularin-related phosphatase 5 is a critical determinant of autophagy in neurons. *Curr. Biol.* 32: 2581-2595.e6.
- Klee, K.M.C., et al. 2023. A CRISPR screen in intestinal epithelial cells identifies novel factors for polarity and apical transport. *Elife* 12: e80135.

RESEARCH USE

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