

MTMR2 (B-6): sc-365185



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 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.
- 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.
- Mochizuki, Y. and Majerus, P.W. 2003. Characterization of myotubularin-related protein 7 and its binding partner, myotubularin-related protein 9. *Proc. Natl. Acad. Sci. USA* 100: 9768-9773.
- Srivastava, S., et al. 2006. Phosphatidylinositol 3-phosphate indirectly activates KCa3.1 via 14 amino acids in the carboxy-terminus of KCa3.1. *Mol. Biol. Cell* 17: 146-154.
- Lorenzo, O., et al. 2006. Systematic analysis of myotubularins: heteromeric interactions, subcellular localisation and endosomerelated functions. *J. Cell Sci.* 119: 2953-2959.

CHROMOSOMAL LOCATION

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

SOURCE

MTMR2 (B-6) 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 IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365185 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

MTMR2 (B-6) 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 (B-6) 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.

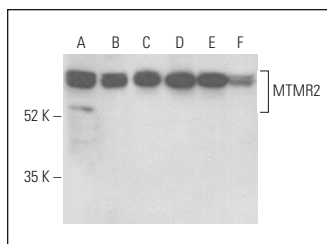
Molecular Weight of MTMR2: 73 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SH-SY5Y cell lysate: sc-3812 or EOC 20 whole cell lysate: sc-364187.

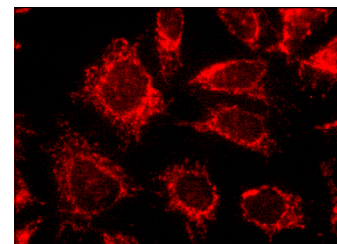
RECOMMENDED SUPPORT REAGENTS

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 (B-6): sc-365185. Western blot analysis of MTMR2 expression in HeLa (A), SH-SY5Y (B), EOC 20 (C), C6 (D), 3611-RF (E) and MM142 (F) whole cell lysates.



MTMR2 (B-6): sc-365185. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

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.