

MTMR3 (C-4): sc-515100

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)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

1. Laporte, J., et al. 1997. Mutations in the MTM1 gene implicated in X-linked myotubular myopathy. *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.
4. 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.
5. 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.
6. 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: MTMR3 (human) mapping to 22q12.2.

SOURCE

MTMR3 (C-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 271-296 within an internal region of MTMR3 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-515100 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

MTMR3 (C-4) is recommended for detection of MTMR3 of 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 MTMR3 siRNA (h): sc-61088, MTMR3 shRNA Plasmid (h): sc-61088-SH and MTMR3 shRNA (h) Lentiviral Particles: sc-61088-V.

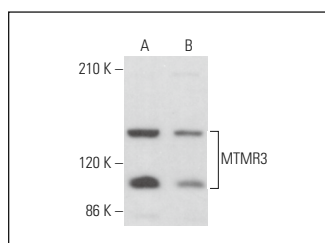
Molecular Weight of MTMR3: 134 kDa.

Positive Controls: MTMR3 (h2): 293T Lysate: sc-112826, CCRF-CEM cell lysate: sc-2225 or HEL 92.1.7 cell lysate: sc-2270.

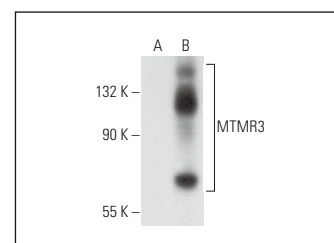
RECOMMENDED SUPPORT REAGENTS

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



MTMR3 (C-4): sc-515100. Western blot analysis of MTMR3 expression in CCRF-CEM (A) and HEL 92.1.7 (B) whole cell lysates.



MTMR3 (C-4): sc-515100. Western blot analysis of MTMR3 expression in non-transfected: sc-117752 (A) and human MTMR3 transfected: sc-112826 (B) 293T whole cell lysates.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.