

Munc13-1/2/3 (32): sc-136182

BACKGROUND

Munc13 proteins (Munc13-1, Munc13-2, and Munc13-3) make up a family of highly homologous synaptic molecules that bind Syntaxin, an essential mediator of neurotransmitter release. Munc13 proteins contain phorbol ester binding C1- and C2-domains, which are regulatory domains for Ca²⁺, phospholipids and diacylglycerol. Munc13 proteins are primarily expressed by neurons, except for a ubiquitously expressed Munc13-2 splice variant. Munc13-1 is expressed by most neurons; it interacts with the N-terminal of Doc2 α , which is concentrated on the synaptic vesicle. Munc13-1 also interacts directly with msec7-1 to co-localize the two proteins at the active zone, a presynaptic, subcellular compartment with extremely high membrane turnover. Munc13-1 is essential for synaptic vesicle maturation and plays a role in the central priming function in synaptic vesicle exocytosis from glutamatergic synapses. Munc13-1 is concentrated in presynaptic terminals. Munc13-2 is expressed in rostral regions, whereas Munc13-3 is expressed primarily in the cerebellum.

REFERENCES

1. Brose, N., Hofmann, K., Hata, Y. and Südhof, T.C. 1995. Mammalian homologues of *Caenorhabditis elegans* unc-13 gene define novel family of C2-domain proteins. *J. Biol. Chem.* 270: 25273-25280.
2. Mochida, S., Orita, S., Sakaguchi, G. and Sasaki, T. 1998. Role of the Doc2a-Munc13-1 interaction in the neurotransmitter release process. *Proc. Natl. Acad. Sci. USA* 95: 11418-11422.
3. Neeb, A., Koch, H., Schurmann, A. and Brose, N. 1999. Direct interaction between the ARF-specific guanine nucleotide exchange factor msec7-1 and presynaptic Munc13-1. *Eur. J. Cell Biol.* 78: 533-538.
4. Augustin, I., Rosenmund, C., Südhof, T.C. and Brose, N. 1999. Munc13-1 is essential for fusion competence of glutamatergic synaptic vesicles. *Nature* 400: 457-461.
5. Augustin, I., Betz, A., Herrmann, C., Jo, T. and Brose, N. 1999. Differential expression of two novel Munc13 proteins in rat brain. *Biochem. J.* 337: 363-371.
6. Koch, H., Hofmann, K. and Brose, N. 2000. Definition of Munc13-homology domains and characterization of a novel ubiquitously expressed Munc13 isoform. *Biochem. J.* 349: 247-253.
7. Augustin, I., Korte, S., Rickmann, M., Dretschmar, H.A., Südhof, T.C., Herms, J.W. and Brose, N. 2001. The cerebellum-specific Munc13 isoform Munc13-3 regulates cerebellar synaptic transmission and motor learning in mice. *J. Neurosci.* 21: 10-17.

SOURCE

Munc13-1/2/3 (32) is a mouse monoclonal antibody raised against amino acids 621-834 of Munc13-1 of rat origin.

PRODUCT

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

APPLICATIONS

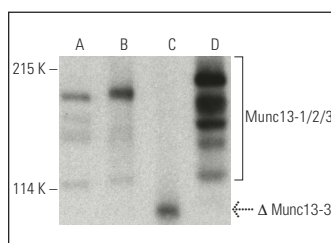
Munc13-1/2/3 (32) is recommended for detection of Munc13-1, Munc13-2 and Munc13-3 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Positive Controls: Munc13-2 (m): 293T Lysate: sc-178969, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

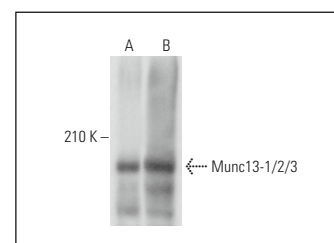
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



Munc13-1/2/3 (32): sc-136182. Western blot analysis of Munc13-1/2/3 expression in non-transfected 293T: sc-117752 (A), mouse Munc13-2 transfected 293T: sc-178969 (B) and truncated mouse Munc13-3 transfected 293T: sc-121868 (C) whole cell lysates and mouse brain tissue extract (D). Detection reagent used: m-IgG κ BP-HRP: sc-516102.



Munc13-1/2/3 (32): sc-136182. Western blot analysis of Munc13-1/2/3 expression in rat hippocampus (A) and mouse brain (B) tissue extracts.

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.