

Munc13-1 (R-15): sc-13633

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., et al. 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., et al. 1998. Role of the Doc2a-Munc13-1 interaction in the neurotransmitter release process. *Proc. Natl. Acad. Sci. USA* 95: 11418-22.
3. Neeb, A., et al. 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., et al. 1999. Differential expression of two novel Munc13 proteins in rat brain. *Biochem. J.* 337: 363-371.
5. Augustin, I., et al. 1999. Munc13-1 is essential for fusion competence of glutamatergic synaptic vesicles. *Nature* 400: 457-461.
6. Koch, H., et al. 2000. Definition of Munc13-homology-domains and characterization of a novel ubiquitously expressed Munc13 isoform. *Biochem. J.* 349: 247-253.
7. Augustin, I., et al. 2001. The cerebellum-specific Munc13 isoform Munc13-3 regulates cerebellar synaptic transmission and motor learning in mice. *J. Neurosci.* 21: 10-17.

CHROMOSOMAL LOCATION

Genetic locus: UNC13A (human) mapping to 19p13.11; Unc13a (mouse) mapping to 8 B3.3.

SOURCE

Munc13-1 (R-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Munc13-1 of rat origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-13633 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Munc13-1 (R-15) is recommended for detection of Munc13-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Munc13-1 (R-15) is also recommended for detection of Munc13-1 in additional species, including bovine and porcine.

Suitable for use as control antibody for Munc13-1 siRNA (h): sc-42020, Munc13-1 siRNA (m): sc-42021, Munc13-1 shRNA Plasmid (h): sc-42020-SH, Munc13-1 shRNA Plasmid (m): sc-42021-SH, Munc13-1 shRNA (h) Lentiviral Particles: sc-42020-V and Munc13-1 shRNA (m) Lentiviral Particles: sc-42021-V.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.