SANTA CRUZ BIOTECHNOLOGY, INC.

Munc13-2 siRNA (h): sc-42022

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 Ca^{2+}, 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 Doc2α, 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 Doc2α-Munc13-1 interaction in the neurotransmitter release process. Proc. Natl. Acad. Sci. USA 95: 11418-11422.
3. Augustin, I., et al. 1999. Differential expression of two novel Munc13 proteins in rat brain. Biochem. J. 337: 363-371.
4. 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.
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-domians and characterization of a novel ubiquitously expressed Munc13 isoform. Biochem. J. 349: 247-253.

CHROMOSOMAL LOCATION

Genetic locus: UNC13B (human) mapping to 9p13.3.

PRODUCT

Munc13-2 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Munc13-2 shRNA Plasmid (h): sc-42022-SH and Munc13-2 shRNA (h) Lentiviral Particles: sc-42022-V as alternate gene silencing products.

For independent verification of Munc13-2 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42022A, sc-42022B and sc-42022C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Munc13-2 siRNA (h) is recommended for the inhibition of Munc13-2 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Munc13-2 gene expression knockdown using RT-PCR Primer: Munc13-2 (h)-PR: sc-42022-PR (20 µl, 600 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Xie, J., et al. 2020. Munc13 mediates klotho-inhibitable diacylglycerol-stimulated exocytotic insertion of pre-docked TRPC6 vesicles. PLoS ONE 15: e0229799.

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.