SANTA CRUZ BIOTECHNOLOGY, INC.

Synaptojanin 1 siRNA (h): sc-39079

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The Power to Question

BACKGROUND

The inositol polyphosphate 5-phosphatases selectively remove the phosphate from the 5-position of various phosphatidylinositols, which generate second messengers in response to extracellular signals. Synaptojanins are characterized by an N-terminal SAC1-like sequence, a central 5-phosphate domain, and a unique C-terminal sequence and have been shown to use phosphatidylinositol 4,5-bisphosphate as a substrate. Synaptojanins exist as two isoforms, Synaptojanin 1 and 2, which differ in the C-terminal domain, and each isoform has multiple variants produced by alternative splicing. Synaptojanin 1 is expressed as two major forms: the shorter is found in brain while the longer is expressed in peripheral tissues. Eight splice variants of Synaptojanin 2 have been detected, including a brain specific isoform. Synaptojanins are thought to participate in the endocytosis of synaptic vesicles and the regulation of the actin cytoskeleton.

REFERENCES

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2. Nemoto, Y., et al. 1997. Synaptojanin 2, a novel Synaptojanin isoform with a distinct targeting domain and expression pattern. J. Biol. Chem. 272: 30817-30821.
3. Zhang, X. and Majerus, P.W. 1998. Phosphatidylinositol signalling reactions. Semin. Cell Dev. Biol. 9: 153-160.
4. Erneux, C., et al. 1998. The diversity and possible functions of the inositol polyphosphate 5-phosphatases. Biochim. Biophys. Acta 1436: 185-199.
5. Khvotchev, M. and Sudhof, T.C. 1998. Developmentally regulated alternative splicing in a novel Synaptojanin. J. Biol. Chem. 273: 2306-2311.
6. Seet, L.F., et al. 1998. Molecular cloning of multiple isoforms of Synaptojanin 2 and assignment of the gene to mouse chromosome 17A2-3.1. Biochem. Biophys. Res. Commun. 247: 116-22.
7. Takenawa, T., et al. 1999. Regulation of phosphatidylinositol 4,5-bisphosphate levels and its roles in cytoskeletal re-organization and malignant transformation. Chem. Phys. Lipids 98: 13-22.

CHROMOSOMAL LOCATION

Genetic locus: SYNJ1 (human) mapping to 21q22.11.

PRODUCT

Synaptojanin 1 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 Synaptojanin 1 shRNA Plasmid (h): sc-39079-SH and Synaptojanin 1 shRNA (h) Lentiviral Particles: sc-39079-V as alternate gene silencing products.

For independent verification of Synaptojanin 1 (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-39079A, sc-39079B and sc-39079C.

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

Synaptojanin 1 siRNA (h) is recommended for the inhibition of Synaptojanin 1 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.

GENE EXPRESSION MONITORING

Synaptojanin 1 (5H1): sc-32770 is recommended as a control antibody for monitoring of Synaptojanin 1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Synaptojanin 1 gene expression knockdown using RT-PCR Primer: Synaptojanin 1 (h)-PR: sc-39079-PR (20 µl, 583 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.