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rapsyn siRNA (h): sc-42206

BACKGROUND

The RAPSN gene locus is located on chromosome 11p11.2 and encodes a peripheral membrane protein. Rapsyn (receptor-associated protein of the synapse) is expressed in the postsynaptic membrane of skeletal muscle. Rapsyn is required for the clustering of nicotinic acetylcholine receptors (nAChR). Rapsyn self-associates through at least two of its seven tetra-tricopeptide repeats (TPRs). Rapsyn interacts with the large intracellular domain of the nAChR α subunit through the hydrophobic surface of the coiled-coil domain. Rapsyn modifies trafficking of AChR within the cell. Expression is essential for agrin-induced AChR clustering. Overexpression inhibits agrin-induced AChR clustering pathway. Absence of rapsyn causes deficit in the formation of post-synaptic specializations at neuromuscular synapse, which increases axonal branching and motoneuron survival. Rapsyn plays a role in selective targeting of newly synthesized intracellular AChR to postsynaptic membrane.

REFERENCES

1. Buckel, A., et al. 1996. Cloning of cDNA encoding human rapsyn and mapping of the RAPSN gene locus to chromosome 11p11.2-11.1. *Genomics* 35: 613-616.
2. Maimone, M.M., et al. 1999. The intracellular domain of the nicotinic acetylcholine receptor α subunit mediates its coclustering with rapsyn. *Mol. Cell. Neurosci.* 14: 340-354.
3. Han, H., et al. 1999. Overexpression of rapsyn inhibits agrin induced acetylcholine receptor clustering in muscle cells. *J. Neurocytol.* 28: 763-775.
4. Ramarao, M.K., et al. 2000. Role of rapsyn tetratricopeptide repeat and coiled-coil domains in self-association and nicotinic acetylcholine receptor clustering. *J. Biol. Chem.* 276: 7475-7483.
5. Han, H., et al. 2000. Overexpression of rapsyn modifies the intracellular trafficking of acetylcholine receptors. *J. Neurosci. Res.* 60: 155-163.
6. Banks, G.B., et al. 2001. Promotion of motoneuron survival and branching in rapsyn-deficient mice. *J. Comp. Neurol.* 429: 156-165.

CHROMOSOMAL LOCATION

Genetic locus: RAPSN (human) mapping to 11p11.2.

PRODUCT

rapsyn 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see rapsyn shRNA Plasmid (h): sc-42206-SH and rapsyn shRNA (h) Lentiviral Particles: sc-42206-V as alternate gene silencing products.

For independent verification of rapsyn (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-42206A, sc-42206B and sc-42206C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

rapsyn siRNA (h) is recommended for the inhibition of rapsyn 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 μ M in 66 μ l. 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

rapsyn (1234): sc-58585 is recommended as a control antibody for monitoring of rapsyn 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor rapsyn gene expression knockdown using RT-PCR Primer: rapsyn (h)-PR: sc-42206-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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