

neuroigin 1 siRNA (r): sc-156002

BACKGROUND

Neuroigins are a family of plasma membrane proteins that possess an N-terminal hydrophobic domain, a large esterase homology domain, a single transmembrane region, a short cytoplasmic domain, and an EF-hand binding domain. Members of the neuroigin family include neuroigin 1, neuroigin 2 and neuroigin 3. Neuroigins are expressed in excitatory neuronal synaptic clefts. Neuroigins play a role in the formation and remodeling of CNS synapses by binding to β -neurexins, a family of neuronal cell surface proteins. Neurexin 1 β binds to the EF-hand domain of neuroigin 1 and requires calcium ion. Neuroigins also bind to PSD-95, which may recruit ion channels and neurotransmitter receptors to the synapses.

REFERENCES

1. Ichtchenko, K., et al. 1996. Structures, alternative splicing, and neurexin binding of multiple neuroigins. *J. Biol. Chem.* 271: 2676-2682.
2. Nguyen, T. and Sudhof, T.C. 1997. Binding properties of neuroigin 1 and neurexin 1 β reveal fuction as heterophilic cell adhesion molecules. *J. Biol. Chem.* 272: 26032-26039.
3. Irie, M., et al. 1997. Binding of neuroigin to PSD-95. *Science* 277: 1511-1515.
4. Song, J.Y., et al. 1999. Neuroigin 1 is a postsynaptic cell-adhesion molecule of excitatory synapses. *Proc. Natl. Acad. Sci. USA* 96: 1100-1105.
5. Tsigelny, I., et al. 2000. Common EF-hand motifs in cholinesterases and neuroigins suggest a role for Ca²⁺ binding in cell surface associations. *Protein Sci.* 9: 180-185.
6. Philibert R.A., et al. 2000. The structure and expression of the human neuroigin 3 gene. *Gene* 246: 303-310.
7. Scheiffele, P., et al. 2000. Neuroigin expressed in nonneuronal cells triggers presynaptic development in contacting axons. *Cell* 100: 657-669.

CHROMOSOMAL LOCATION

Genetic locus: Nlgn1 (rat) mapping to 2q24.

PRODUCT

neuroigin 1 siRNA (r) 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 neuroigin 1 shRNA Plasmid (r): sc-156002-SH and neuroigin 1 shRNA (r) Lentiviral Particles: sc-156002-V as alternate gene silencing products.

For independent verification of neuroigin 1 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-156002A, sc-156002B and sc-156002C.

PROTOCOLS

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

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

neuroigin 1 siRNA (r) is recommended for the inhibition of neuroigin 1 expression in rat 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

neuroigin 1 (A-4): sc-365110 is recommended as a control antibody for monitoring of neuroigin 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-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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor neuroigin 1 gene expression knockdown using RT-PCR Primer: neuroigin 1 (r)-PR: sc-156002-PR (20 μ l). 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.