

netrin-3 siRNA (m): sc-42049

BACKGROUND

Netrin proteins are a family of laminin-related secreted proteins that provide guidance signals for axonal growth and cell migration during development. Netrin signaling is dependent on the concentration of calcium outside the cell and the level of PKA activity. In axonal cells, a reduction in PKA activity converts the responsiveness of the axons to the netrin proteins as the cells are repelled, rather than attracted, by the netrin gradient. Neogenin serves as the primary guidance receptor for netrin-3. Netrin-2 and the corresponding mouse homolog netrin-3 are expressed primarily in the lower two-thirds of the spinal cord, and, like netrin-1, they can either attract or repel commissural axons at a distance. Netrin-3 proteins are associated with the axon fibers projecting from motor neurons and from neurons within sympathetic and sensory ganglia, suggesting that netrin-3 may be involved in pathfinding and fasciculation of axon projection. Neogenin serves as the primary guidance receptor for netrin-3. During peripheral nerve development, high netrin-3 expression has been detected in mesenchymal cells, sensory ganglia and muscles. In humans, the gene encoding for the netrin-3 protein is localized to chromosome 16p13.3.

REFERENCES

1. Kennedy, T.E., et al. 1994. Netrins are diffusible chemotropic factors for commissural axons in the embryonic spinal cord. *Cell* 78: 425-435.
2. Van Raay, T.J., et al. 1997. The NTN2L gene encoding a novel human netrin maps to the autosomal dominant polycystic kidney disease region on chromosome 16p13.3. *Genomics* 41: 279-282.
3. Ming, G.L., et al. 1997. cAMP-dependent growth cone guidance by netrin-1. *Neuron* 19: 1225-1235.
4. Wang, H., et al. 1999. Netrin-3, a mouse homolog of human NTN2L, is highly expressed in sensory ganglia and shows differential binding to netrin receptors. *J. Neurosci.* 19: 4938-4947.
5. Kang, J.S., et al. 2004. Netrins and neogenin promote myotube formation. *J. Cell Biol.* 167: 493-504.
6. SWISS-PROT/TrEMBL (O00634). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

CHROMOSOMAL LOCATION

Genetic locus: Ntn3 (mouse) mapping to 17 A3.3.

PRODUCT

netrin-3 siRNA (m) 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 netrin-3 shRNA Plasmid (m): sc-42049-SH and netrin-3 shRNA (m) Lentiviral Particles: sc-42049-V as alternate gene silencing products.

For independent verification of netrin-3 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42049A, sc-42049B and sc-42049C.

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

netrin-3 siRNA (m) is recommended for the inhibition of netrin-3 expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor netrin-3 gene expression knockdown using RT-PCR Primer: netrin-3 (m)-PR: sc-42049-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.

PROTOCOLS

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