

NIMP siRNA (m): sc-149975

BACKGROUND

Nogo is an oligodendrocyte-specific member of the Reticulon family and is a component of CNS white matter that inhibits axon outgrowth, induces collapse of growth cones of chick dorsal root ganglion cells, and inhibits the spreading of 3T3 fibroblasts. Nogo is expressed by oligodendrocytes but not by Schwann cells, and associates primarily with the endoplasmic reticulum. Nogo exists in three different splice forms, Nogo-A, -B and -C. NIMP (Nogo-interacting mitochondrial protein), also known as RTN4IP1 (reticulon-4-interacting protein 1), is a 396 amino acid mitochondrial protein that contains a C-terminal oxidoreductaselike domain and numerous sites for phosphorylation. NIMP is expressed in mitochondrial-rich tissue such as kidney, heart, skeletal muscle and specific regions within the nervous system. Through interaction with Nogo, it is likely that NIMP plays a role in Nogo-induced inhibition of neurite growth. There are three isoforms of NIMP that are produced as a result of alternative splicing events.

REFERENCES

- Huber, A.B. and Schwab, M.E. 2000. Nogo-A, a potent inhibitor of neurite outgrowth and regeneration. *Biol. Chem.* 381: 407-419.
- Hu, W.H., et al. 2002. Identification and characterization of a novel Nogo-interacting mitochondrial protein (NIMP). *J. Neurochem.* 81: 36-45.
- Hunt, D., et al. 2002. The Nogo receptor, its ligands and axonal regeneration in the spinal cord; a review. *J. Neurocytol.* 31: 93-120.
- Mungall, A.J., et al. 2003. The DNA sequence and analysis of human chromosome 6. *Nature* 425: 805-811.
- Schwab, M.E. 2004. Nogo and axon regeneration. *Curr. Opin. Neurobiol.* 14: 118-124.
- Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 610502. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- David, S., et al. 2008. Novel roles for Nogo receptor in inflammation and disease. *Trends Neurosci.* 31: 221-226.
- Liu, X., et al. 2009. Nogo-A inhibits necdin-accelerated neurite outgrowth by retaining necdin in the cytoplasm. *Mol. Cell. Neurosci.* 41: 51-61.

CHROMOSOMAL LOCATION

Genetic locus: Rtn4ip1 (mouse) mapping to 10 B2.

PRODUCT

NIMP 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 NIMP shRNA Plasmid (m): sc-149975-SH and NIMP shRNA (m) Lentiviral Particles: sc-149975-V as alternate gene silencing products.

For independent verification of NIMP (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-149975A, sc-149975B and sc-149975C.

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

NIMP siRNA (m) is recommended for the inhibition of NIMP 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.

GENE EXPRESSION MONITORING

NIMP (D-2): sc-514049 is recommended as a control antibody for monitoring of NIMP 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 NIMP gene expression knockdown using RT-PCR Primer: NIMP (m)-PR: sc-149975-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.