SANTA CRUZ BIOTECHNOLOGY, INC.

Nogo-R siRNA (h): sc-42140

BACKGROUND

CNS white matter is selectively inhibitory for axonal outgrowth. Nogo is an oligodendrocyte-specific member of the reticulon family and is a component of CNS white matter that prevents axonal regeneration in the adult CNS. Nogo is expressed by oligodendrocytes and associates primarily with the endoplasmic reticulum. The extracellular domain of Nogo, designated Nogo-66, inhibits axonal extension but does not alter non-neuronal cell morphology. Expression of a brain-specific, leucine-rich-repeat protein with high affinity for Nogo-66, the Nogo-66 receptor (Nogo-R), is sufficient to impart Nogo-66 axonal inhibition to unresponsive neurons. Disruption of the interaction between Nogo-66 and Nogo-R potentially provides for enhanced recovery after human CNS injury. Nogo-R is widely expressed in the brain, with the highest levels of expression in the gray matter of the CNS. In addition, low levels of Nogo-R mRNA are expressed in heart and kidney. The gene encoding Nogo-R maps to human chromosome 22q11.21.

REFERENCES

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4. Spillmann, A.A., et al. 1998. Identification and characterization of a bovine neurite growth inhibitor (bNI-220). J. Biol. Chem. 273: 19283-19293.
5. GrandPre, T., et al. 2000. Identification of the Nogo inhibitor of axon regeneration as a Reticulon protein. Nature 403: 439-444.
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7. Liao, H., et al. 2004. Nogo-66 and myelin-associated glycoprotein (MAG) inhibit the adhesion and migration of Nogo-66 receptor expressing human glioma cells. J. Neurochem. 90: 1156-1162.
8. Lee, J.K., et al. 2004. Nogo receptor antagonism promotes stroke recovery by enhancing axonal plasticity. J. Neurosci. 24: 6209-6217.
9. Zheng, B., et al. 2005. Genetic deletion of the Nogo receptor does not reduce neurite inhibition *in vitro* or promote corticospinal tract regeneration *in vivo*. Proc. Natl. Acad. Sci. USA 102: 1205-1210.

CHROMOSOMAL LOCATION

Genetic locus: RTN4R (human) mapping to 22q11.21.

PROTOCOLS

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

PRODUCT

Nogo-R 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 Nogo-R shRNA Plasmid (h): sc-42140-SH and Nogo-R shRNA (h) Lentiviral Particles: sc-42140-V as alternate gene silencing products.

For independent verification of Nogo-R (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-42140A, sc-42140B and sc-42140C.

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

Nogo-R siRNA (h) is recommended for the inhibition of Nogo-R 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Nogo-R gene expression knockdown using RT-PCR Primer: Nogo-R (h)-PR: sc-42140-PR (20 µl). 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.