

# netrin G1 siRNA (h): sc-72290

## BACKGROUND

Netrin G1 and netrin G2, also referred to as laminin-1 and laminin-2, are membrane bound axon guidance molecules involved in synaptic formation and maintenance. They comprise a subgroup within the UNC-6/netrin family. Both genes have been associated with schizophrenia involving single nucleotide polymorphisms. They are both expressed in the brain but G1 is most predominantly expressed in the thalamus and G2 is most predominantly expressed in the cortex. These two proteins differ from classical netrins by their failure to bind netrin receptors, the presence of a glycosyl phosphatidylinositol membrane anchor, and the generation of multiple isoforms. Netrin G1 has at least nine isoforms, all of which are expressed in adult brain. Isoforms G1a, c, d, and e are also expressed in fetal brain. G1c and G1d are the most highly expressed netrin G1 isoforms. Netrin G1 is involved in NMDA receptor function and may play a role in Rett syndrome (RTT), atypical autism, epilepsy and mental retardation.

## REFERENCES

1. Yin, Y., et al. 2002. Laminins: laminin- and netrin-related genes expressed in distinct neuronal subsets. *Mol. Cell. Neurosci.* 19: 344-358.
2. Fukasawa, M., et al. 2004. Case-control association study of human netrin G1 gene in Japanese schizophrenia. *J. Med. Dent. Sci.* 51: 121-128.
3. Miyashita, T., et al. 2005. Strong expression of netrin G2 in the monkey claustrum. *Neuroscience* 136: 487-496.
4. Meerabux, J.M., et al. 2005. Human netrin G1 isoforms show evidence of differential expression. *Genomics* 86: 112-116.
5. Borg, I., et al. 2005. Disruption of netrin G1 by a balanced chromosome translocation in a girl with Rett syndrome. *Eur. J. Hum. Genet.* 13: 921-927.
6. Aoki-Suzuki, M., et al. 2005. A family-based association study and gene expression analyses of netrin G1 and G2 genes in schizophrenia. *Biol. Psychiatry* 57: 382-393.
7. Archer, H.L., et al. 2006. NTNG1 mutations are a rare cause of Rett syndrome. *Am. J. Med. Genet. A* 140: 691-694.

## CHROMOSOMAL LOCATION

Genetic locus: NTNG1 (human) mapping to 1p13.3.

## PRODUCT

netrin G1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see netrin G1 shRNA Plasmid (h): sc-72290-SH and netrin G1 shRNA (h) Lentiviral Particles: sc-72290-V as alternate gene silencing products.

For independent verification of netrin G1 (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-72290A, sc-72290B and sc-72290C.

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

## APPLICATIONS

netrin G1 siRNA (h) is recommended for the inhibition of netrin G1 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  $\mu$ M in 66  $\mu$ 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

netrin G1 (D-2): sc-271774 is recommended as a control antibody for monitoring of netrin G1 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 netrin G1 gene expression knockdown using RT-PCR Primer: netrin G1 (h)-PR: sc-72290-PR (20  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.