SANTA CRUZ BIOTECHNOLOGY, INC.

neuropilin siRNA (h): sc-36038

BACKGROUND

Neuropilin is a type I transmembrane receptor that has been implicated in aspects of axon growth and guidance and has been shown to act as a high affinity receptor for class III semaphorins and vascular endothelial growth factor (VEGF). A closely related protein, neuropilin-2, shares a common domain structure and signifcant homology with neuropilin and also acts as a receptor for the class III semaphorins and VEGF. Both neuropilins are involved in regulating many physiological pathways including axonal guidance and angiogenesis, however they exhibit differential expression in the adult vasculature. Neuropilin-2 is polysialylated and expressed on the surface of dendritic cells. It is also expressed by venous and lymphatic endothelium. Neuropilin is expressed predominantly by arterial endothelium.

CHROMOSOMAL LOCATION

Genetic locus: NRP1 (human) mapping to 10p11.22.

PRODUCT

neuropilin 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 neuropilin shRNA Plasmid (h): sc-36038-SH and neuropilin shRNA (h) Lentiviral Particles: sc-36038-V as alternate gene silencing products.

For independent verification of neuropilin (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-36038A, sc-36038B and sc-36038C.

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

neuropilin siRNA (h) is recommended for the inhibition of neuropilin 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.

GENE EXPRESSION MONITORING

neuropilin (A-12): sc-5307 is recommended as a control antibody for monitoring of neuropilin 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor neuropilin gene expression knockdown using RT-PCR Primer: neuropilin (h)-PR: sc-36038-PR (20 µl, 543 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jin, Q., et al. 2010. Alternate receptor usage of neuropilin-1 and glucose transporter protein 1 by the human T cell leukemia virus type 1. Virology 396: 203-212.
2. Yue, B., et al. 2014. Knockdown of neuropilin-1 suppresses invasion, angiogenesis, and increases the chemosensitivity to doxorubicin in osteosarcoma cells—an *in vitro* study. Eur. Rev. Med. Pharmacol. Sci. 18: 1735-1741.
3. Prud'homme, G.J., et al. 2016. Neuropilin-1 is a receptor for extracellular miRNA and AGO2/miRNA complexes and mediates the internalization of miRNAs that modulate cell function. Oncotarget 7: 68057-68071.
4. Kerros, C., et al. 2017. Neuropilin-1 mediates neutrophil elastase uptake and cross-presentation in breast cancer cells. J. Biol. Chem. 292: 10295-10305.
5. Grun, D., et al. 2018. NRP-1 interacts with GIPC1 and α6/β4-integrins to increase YAP1/ΔNp63α-dependent epidermal cancer stem cell survival. Oncogene 37: 4711-4722.
6. Ceccarelli, S., et al. 2018. Neuropilin 1 mediates keratinocyte growth factor signaling in adipose-derived stem cells: potential involvement in adipogenesis. Stem Cells Int. 2018: 1075156.
7. Grun, D., et al. 2019. NRP-1 interacts with GIPC1 and SYX to activate p38 MAPK signaling and cancer stem cell survival. Mol. Carcinog. 58: 488-499.
8. Bao, R., et al. 2021. Transcriptional analysis of metastatic uveal melanoma survival nominates NRP1 as a therapeutic target. Melanoma Res. 31: 27-37.
9. Cui, C., et al. 2021. Neutrophil elastase selectively kills cancer cells and attenuates tumorigenesis. Cell 184: 3163-3177.e21.
10. Zheng, Y., et al. 2022. Regulation of Semaphorin3A in the process of cutaneous wound healing. Cell Death Differ. E-published.

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.