

Neuregulin-3 siRNA (h): sc-45301

BACKGROUND

The ErbB/HER family of receptor tyrosine kinases consists of four receptors that bind a large number of growth factor ligands sharing an epidermal growth factor-(EGF)-like motif. The neuregulins (NRGs) are a diverse family of proteins that arise by alternative splicing from a single gene. These proteins play an important role in controlling the growth and differentiation of glial, epithelial, and muscle cells. Whereas ErbB-1 binds seven different ligands whose prototype is EGF, the four families of neuregulins activate ErbB-3 and/or ErbB-4. Neuregulin-1 (also known as heregulin) has diverse functions in neural development, and one of them is to up-regulate the expression of acetylcholine receptors at muscle fibers during the formation of neuromuscular junctions. Neuregulin-2 exhibits a distinct expression pattern in adult brain and developing heart. Neuregulin-3 is expressed in cell lines derived from breast cancer and is a potential regulator of normal and malignant breast epithelial cells. Neuregulin-4 is detected in the adult pancreas and weakly in muscle.

REFERENCES

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2. Yarden, Y., et al. 1988. Growth factor receptor tyrosine kinases. *Annu. Rev. Biochem.* 57: 433-478.
3. Holmes, W.E., et al. 1992. Identification of heregulin, a specific activator of p185^{ErbB-2}. *Science* 256: 1205-1210.
4. Marchionni, M.A., et al. 1993. Glial growth factors are alternatively spliced ErbB-2 ligands expressed in the nervous system. *Nature* 362: 312-318.
5. Plowman, G.D., et al. 1993. Heregulin induces tyrosine phosphorylation of HER4/p180^{ErbB-4}. *Nature* 366: 473-475.
6. Carraway, K.L., III., et al. 1994. The ErbB-3 gene product is a receptor for heregulin. *J. Biol. Chem.* 269: 14303-14306.
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CHROMOSOMAL LOCATION

Genetic locus: NRG3 (human) mapping to 10q23.1.

PRODUCT

Neuregulin-3 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Neuregulin-3 shRNA Plasmid (h): sc-45301-SH and Neuregulin-3 shRNA (h) Lentiviral Particles: sc-45301-V as alternate gene silencing products.

For independent verification of Neuregulin-3 (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-45301A, sc-45301B and sc-45301C.

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

Neuregulin-3 siRNA (h) is recommended for the inhibition of Neuregulin-3 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 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

Neuregulin-3 (D-3): sc-390171 is recommended as a control antibody for monitoring of Neuregulin-3 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 Neuregulin-3 gene expression knockdown using RT-PCR Primer: Neuregulin-3 (h)-PR: sc-45301-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.