SANTA CRUZ BIOTECHNOLOGY, INC.

Neuregulin-3 siRNA (m): sc-45302

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

1. Coussens, L., et al. 1985. Tyrosine kinase receptor with extensive homology to EGF receptor shares chromosomal location with neu oncogene. Science 230: 1132-1139.
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.
7. Carraway, K.L., III. and Cantley, L.C. 1994. A Neu acquaintance for ErbB-3 and ErbB-4: a role for receptor heterodimerization in growth signaling. Cell 78: 5-8.

CHROMOSOMAL LOCATION

Genetic locus: Nrg3 (mouse) mapping to 14 B.

PRODUCT

Neuregulin-3 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Neuregulin-3 shRNA Plasmid (m): sc-45302-SH and Neuregulin-3 shRNA (m) Lentiviral Particles: sc-45302-V as alternate gene silencing products.

For independent verification of Neuregulin-3 (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-45302A, sc-45302B and sc-45302C.

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

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

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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 (m)-PR: sc-45302-PR (20 µl, 578 bp). 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.