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# Neuregulin-2 shRNA (h) Lentiviral Particles: sc-45299-V

## 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, one of which is to upregulate 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. *Ann. Rev. Biochem.* 57: 433-478.
3. Holmes, W.E., et al. 1992. Identification of heregulin, a specific activator of p185erbB4. *Science* 256: 1205-1210.
4. Plowman, G.D., et al. 1993. Heregulin induces tyrosine phosphorylation of HER4/p180erbB4. *Nature* 366: 473-475.
5. Marchionni, M.A., et al. 1993. Glial growth factors are alternatively spliced erbB2 ligands expressed in the nervous system. *Nature* 362: 312-318.
6. Carraway, K.L., et al. 1994. The erbB3 gene product is a receptor for heregulin. *J. Biol. Chem.* 269: 14303-14306.

## CHROMOSOMAL LOCATION

Genetic locus: NRG2 (human) mapping to 5q31.2.

## PRODUCT

Neuregulin-2 shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200  $\mu$ l frozen stock containing  $1.0 \times 10^6$  infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see Neuregulin-2 siRNA (h): sc-45299 and Neuregulin-2 shRNA Plasmid (h): sc-45299-SH as alternate gene silencing products.

## STORAGE

Store lentiviral particles at  $-80^{\circ}$  C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at  $4^{\circ}$  C for up to one week. Avoid repeated freeze thaw cycles.

## APPLICATIONS

Neuregulin-2 shRNA (h) Lentiviral Particles is recommended for the inhibition of Neuregulin-2 expression in human cells.

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l frozen viral stock containing  $1.0 \times 10^6$  infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

## GENE EXPRESSION MONITORING

Neuregulin-2 (A-12): sc-398594 is recommended as a control antibody for monitoring of Neuregulin-2 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker<sup>™</sup> compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Neuregulin-2 gene expression knockdown using RT-PCR Primer: Neuregulin-2 (h)-PR: sc-45299-PR (20  $\mu$ l). Annealing temperature for the primers should be  $55-60^{\circ}$  C and the extension temperature should be  $68-72^{\circ}$  C.

## BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

## RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

## PROTOCOLS

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