SANTA CRUZ BIOTECHNOLOGY, INC.

NELL2 siRNA (m): sc-62674

BACKGROUND

NELL2 (neural epidermal growth factor-like like 2), also known as NEL-related protein 2 (NRP2), is a secreted glycoprotein with one N-terminal TSP-like domain, five VWFC (von Willebrand factor C) domains and six EGF-like repeats that participate in calcium binding. NELL2 exists as a homotrimer associated with the endoplasmic reticulum (ER) and is specifically expressed in neurons playing a role in calcium-dependent intracellular events. NELL2 may act as a trophic factor in addition to its role as a signaling molecule implicated in the regulation of cell growth and differentiation. Due to alternative splicing, an additional NELL2 isoform exists that is identical to full length NELL2 except that it lacks the signal peptide that directs secretion. The additional isoform is therefore retained in the cytosol and functions as a non-secreted cytoplasmic protein that interacts with PKC βI.

REFERENCES

1. Oyasu, M., et al. 2000. Immunocytochemical localization of a neuron-specific Thrombospondin-1-like protein, NELL2: light and electron microscopic studies in the rat brain. Brain Res. Mol. Brain Res. 76: 151-160.
2. Maeda, K., et al. 2001. Brain specific human genes, NELL1 and NELL2, are predominantly expressed in neuroblastoma and other embryonal neuroepithelial tumors. Neurol. Med. Chir. 41: 582-589.
3. Kim, H., et al. 2002. Ontogeny and the possible function of a novel epidermal growth factor-like repeat domain-containing protein, NELL2, in the rat brain. J. Neurochem. 83: 1389-1400.
4. Aihara, K., et al. 2003. A neuron-specific EGF family protein, NELL2, promotes survival of neurons through mitogen-activated protein kinases. Brain Res. Mol. Brain Res. 116: 86-93.
5. Bai, J., et al. 2004. Genistein-induced changes in gene expression in Panc 1 cells at physiological concentrations of genistein. Pancreas 29: 93-98.
6. Nelson, B.R., et al. 2004. NELL2 promotes motor and sensory neuron differentiation and stimulates mitogenesis in DRG *in vivo*. Dev. Biol. 270: 322-335.
7. Matsuyama, S., et al. 2004. Enhanced long-term potentiation *in vivo* in dentate gyrus of NELL2-deficient mice. Neuroreport 15: 417-420.

CHROMOSOMAL LOCATION

Genetic locus: Nell2 (mouse) mapping to 15 E3.

PRODUCT

NELL2 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 NELL2 shRNA Plasmid (m): sc-62674-SH and NELL2 shRNA (m) Lentiviral Particles: sc-62674-V as alternate gene silencing products.

For independent verification of NELL2 (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-62674A, sc-62674B and sc-62674C.

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

NELL2 siRNA (m) is recommended for the inhibition of NELL2 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

NELL2 (E-9): sc-390173 is recommended as a control antibody for monitoring of NELL2 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 NELL2 gene expression knockdown using RT-PCR Primer: NELL2 (m)-PR: sc-62674-PR (20 µl). 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.