

Wnt-3 siRNA (h): sc-41106

BACKGROUND

The Wnt gene family encodes secreted signaling molecules that bind to frizzled receptors and influence oncogenesis and developmental processes, including regulation of cell fate and patterning during embryogenesis. The Wnt family has two functional classes according to their biological activities: Wnts that signal through a Wnt-1/wingless pathway by stabilizing cytoplasmic β -catenin and Wnts that stimulate intracellular Ca^{2+} release and activate two kinases, CaMKII and PKC, in a G protein-dependent manner. Wnt-3 is present during development of the cerebellum and is restricted to the Purkinje cell layer in the adult. In motoneurons, Wnt-3 is a retrograde signal that controls terminal branching of muscle afferents. Human Wnt-3 is 98% homologous to mouse Wnt-3 protein and 84% homologous to human Wnt-3a protein. The human Wnt-3 gene clusters with the Wnt-15 gene at chromosome 17q21.31.

REFERENCES

- Salinas, P.C., et al. 1992. Regional expression of the Wnt-3 gene in the developing mouse forebrain in relationship to diencephalic neuromeres. *Mech. Dev.* 39: 151-160.
- Salinas, P.C., et al. 1994. Maintenance of Wnt-3 expression in Purkinje cells of the mouse cerebellum depends on interactions with granule cells. *Development* 120: 1277-1286.
- Kuhl, M., et al. 2000. The Wnt/ Ca^{2+} pathway: a new vertebrate Wnt signaling pathway takes shape. *Trends Genet.* 16: 279-283.
- Krylova, O., et al. 2002. Wnt-3, expressed by motoneurons, regulates terminal arborization of neurotrophin-3-responsive spinal sensory neurons. *Neuron* 35: 1043-1056.

CHROMOSOMAL LOCATION

Genetic locus: WNT3 (human) mapping to 17q21.31.

PRODUCT

Wnt-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 μM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Wnt-3 shRNA Plasmid (h): sc-41106-SH and Wnt-3 shRNA (h) Lentiviral Particles: sc-41106-V as alternate gene silencing products.

For independent verification of Wnt-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-41106A, sc-41106B and sc-41106C.

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

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

Wnt-3 (D-9): sc-74537 is recommended as a control antibody for monitoring of Wnt-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 MarkerTM 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 Wnt-3 gene expression knockdown using RT-PCR Primer: Wnt-3 (h)-PR: sc-41106-PR (20 μl , 502 bp). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.

SELECT PRODUCT CITATIONS

- Liu, P., et al. 2010. Regulation of MT1-MMP activity by β -catenin in MDCK non-cancer and HT1080 cancer cells. *J. Cell. Physiol.* 225: 810-821.
- Wu, Y., et al. 2012. Expression of Wnt-3 activates Wnt/ β -catenin pathway and promotes EMT-like phenotype in trastuzumab-resistant HER2-overexpressing breast cancer cells. *Mol. Cancer Res.* 10: 1597-1606.
- Jiang, J., et al. 2019. High expression of SPAG5 sustains the malignant growth and invasion of breast cancer cells through the activation of Wnt/ β -catenin signalling. *Clin. Exp. Pharmacol. Physiol.* 46: 597-606.

RESEARCH USE

For research use only, not for use in diagnostic procedures.