SANTA CRUZ BIOTECHNOLOGY, INC.

Wnt-3a siRNA (h): sc-41108

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-3a is an intercellular signaling molecule that mediates cytoskeletal reorganization and regulates hippocampal development. Human Wnt-3a is 96% homologous to mouse Wnt-3a protein and 84% homologous to human Wnt-3 protein. The human Wnt-3a gene clusters with the Wnt-14 gene at chromosome 1q42.13.

REFERENCES

1. Shibamoto, S., et al. 1998. Cytoskeletal reorganization by soluble Wnt-3a protein signalling. Genes Cells 3: 659-670.
2. Kuhl, M., et al. 2000. The Wnt/Ca^{2+} pathway: a new vertebrate Wnt signaling pathway takes shape. Trends Genet. 16: 279-283.
3. Lee, S.M., et al. 2000. A local Wnt-3a signal is required for development of the mammalian hippocampus. Development 127: 457-467.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606359. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. LocusLink Report (LocusID: 89780). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: WNT3A (human) mapping to 1q42.13.

PRODUCT

Wnt-3a 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-3a shRNA Plasmid (h): sc-41108-SH and Wnt-3a shRNA (h) Lentiviral Particles: sc-41108-V as alternate gene silencing products.

For independent verification of Wnt-3a (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-41108A, sc-41108B and sc-41108C.

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-3a siRNA (h) is recommended for the inhibition of Wnt-3a 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-3a (3A6): sc-136163 is recommended as a control antibody for monitoring of Wnt-3a 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Wnt-3a gene expression knockdown using RT-PCR Primer: Wnt-3a (h)-PR: sc-41108-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zou, W., et al. 2013. Nicotine-induced epithelial-mesenchymal transition via Wnt/β-catenin signaling in human airway epithelial cells. Am. J. Physiol. Lung Cell. Mol. Physiol. 304: L199-L209.
2. Dzobo, K., et al. 2015. Wnt/β-catenin and MEK-ERK signaling are required for fibroblast-derived extracellular matrix-mediated endoderm differentiation of embryonic stem cells. Stem Cell Rev. 11: 761-773.
3. Jang, J., et al. 2017. LPS-induced inflammatory response is suppressed by Wnt inhibitors, Dickkopf-1 and LGK974. Sci. Rep. 7: 41612.
4. Xu, H., et al. 2019. Exosomes derived from PM2.5-treated lung cancer cells promote the growth of lung cancer via the Wnt3a/β-catenin pathway. Oncol. Rep. 41: 1180-1188.
5. Kyun, M.L., et al. 2020. Wnt3a stimulation promotes primary ciliogenesis through β-catenin phosphorylation-induced reorganization of centriolar satellites. Cell Rep. 30: 1447-1462.
6. Wang, M., et al. 2020. SHED-derived conditioned exosomes enhance the osteogenic differentiation of PDLSCs via Wnt and BMP signaling *in vitro*. Differentiation 111: 1-11.

RESEARCH USE

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