

Wnt-5a siRNA (h): sc-41112

BACKGROUND

The Wnt genes belong to a family of protooncogenes with at least 13 known members that are expressed in species ranging from *Drosophila* to man. The name Wnt denotes the relationship of this family to the *Drosophila* segment polarity gene “wingless” and to its vertebrate ortholog, Int1, a mouse protooncogene. Transcription of Wnt family genes appears to be developmentally regulated in a precise temporal and spatial manner. The Wnt genes encode cysteine-rich putative glycoproteins, which have features typical of secreted growth factors. Northern blot analysis detects expression of Wnt-5a in brain, lung, and heart. At least five distinct Wnt-5a transcripts are observed, which are due to transcript variability 5' to the initiation methionine. *In situ* hybridization detects a complex spatial and temporal pattern of Wnt-5a in the mouse, including expression in the developing central nervous system, limbs, facial processes, and the posterior region of the fetus. Human frizzled-5 is the receptor for the Wnt-5a ligand. It is suggested that Wnt-5a augments primitive hematopoietic development *in vivo* and represents an *in vivo* regulator of hematopoietic stem cell function in the human.

CHROMOSOMAL LOCATION

Genetic locus: WNT5A (human) mapping to 3p14.3.

PRODUCT

Wnt-5a 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Wnt-5a shRNA Plasmid (h): sc-41112-SH and Wnt-5a shRNA (h) Lentiviral Particles: sc-41112-V as alternate gene silencing products.

For independent verification of Wnt-5a (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-41112A, sc-41112B and sc-41112C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Wnt-5a siRNA (h) is recommended for the inhibition of Wnt-5a expression in human cells.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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 μ M in 66 μ l. 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-5a (A-5): sc-365370 is recommended as a control antibody for monitoring of Wnt-5a 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-5a gene expression knockdown using RT-PCR Primer: Wnt-5a (h)-PR: sc-41112-PR (20 μ l, 466 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Bordonaro, M., et al. 2011. A switch from canonical to noncanonical Wnt signaling mediates drug resistance in colon cancer cells. *PLoS ONE* 6: e27308.
- Zhao, Y., et al. 2015. Up-regulated expression of WNT5a increases inflammation and oxidative stress via PI3K/Akt/NF κ B signaling in the granulosa cells of PCOS patients. *J. Clin. Endocrinol. Metab.* 100: 201-211.
- Liu, H., et al. 2016. SphK1 inhibitor SKI II inhibits the proliferation of human hepatoma Hep G2 cells via the Wnt5A/ β -catenin signaling pathway. *Life Sci.* 151: 23-29.
- Baarsma, H.A., et al. 2017. Noncanonical Wnt-5a signaling impairs endogenous lung repair in COPD. *J. Exp. Med.* 214: 143-163.
- Zhang, Q., et al. 2020. Wnt5a is involved in LOX-1 and TLR4 induced host inflammatory response in peri-implantitis. *J. Periodontol.* 55: 199-208.
- Zou, W., et al. 2020. PM2.5 induces the expression of inflammatory cytokines via the Wnt5a/Ror2 pathway in human bronchial epithelial cells. *Int. J. Chron. Obstruct. Pulmon. Dis.* 15: 2653-2662.
- Bian, Y., et al. 2022. *Astragalus membranaceus* (Huangqi) and *Rhizoma curcumae* (Ezhu) decoction suppresses colorectal cancer via downregulation of Wnt5/ β -catenin signal. *Chin. Med.* 17: 11.
- Zhang, L., et al. 2022. Fatty acid signaling impacts prostate cancer lineage plasticity in an autocrine and paracrine manner. *Cancers* 14: 3449.

RESEARCH USE

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