

FRP-2 siRNA (m): sc-40001

BACKGROUND

The frizzled gene, originally identified in *Drosophila melanogaster*, was shown to be involved in the development of tissue polarity. The mammalian homolog of frizzled, as well as several secreted, mammalian, frizzled-related proteins such as FRP-1 (also designated SARP2), FRP-2 (also designated SARP1), FRP-3, FRP-4 and SARP3 (also designated FRP-5), have been identified. The frizzled proteins contain seven transmembrane domains and a cysteine-rich domain in the extra carboxy-terminal Ser/Thr-xxx-Val motif, and they function as receptors for Wnt. The frizzled-1 gene maps to human chromosome 7q21.13 and is expressed in adult heart, placenta, lung, kidney, pancreas, prostate and ovary, as well as in fetal lung and kidney. Frizzled-2 is expressed in adult heart and fetal brain, lung and kidney. The frizzled-related proteins FRP-1, FRP-2, FRP-3, FRP-4 and SARP3 are secreted proteins that contain regions of homology to the cysteine-rich, ligand-binding domain of frizzled and a conserved, hydrophilic carboxy-terminus. The gene encoding human SARP3 maps to chromosome 4q31.3 and is expressed in retinal pigment epithelium (RPE) and pancreas, while expression of FRP-1, 2 and 4 is high in developing tissues. The FRPs/SARPs are involved in the Wnt signaling pathway by regulating the intracellular levels of β -catenin.

REFERENCES

1. Wang, Y., et al. 1996. A large family of putative transmembrane receptors homologous to the product of the *Drosophila* tissue polarity gene frizzled. *J. Biol. Chem.* 271: 4468-4476.
2. Yang-Snyder, J., et al. 1996. A frizzled homolog functions in a vertebrate Wnt signaling pathway. *Curr. Biol.* 6: 1302-1306.

CHROMOSOMAL LOCATION

Genetic locus: Sfrp2 (mouse) mapping to 3 E3.

PRODUCT

FRP-2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FRP-2 shRNA Plasmid (m): sc-40001-SH and FRP-2 shRNA (m) Lentiviral Particles: sc-40001-V as alternate gene silencing products.

For independent verification of FRP-2 (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-40001A, sc-40001B and sc-40001C.

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

FRP-2 siRNA (m) is recommended for the inhibition of FRP-2 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 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

FRP-2 (C-4): sc-365524 is recommended as a control antibody for monitoring of FRP-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 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 Marker[™] 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 FRP-2 gene expression knockdown using RT-PCR Primer: FRP-2 (m)-PR: sc-40001-PR (20 μ l, 499 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gehmert, S., et al. 2008. The anti-apoptotic effect of IGF-1 on tissue resident stem cells is mediated via PI3-kinase dependent secreted frizzled related protein 2 (Sfrp2) release. *Biochem. Biophys. Res. Commun.* 371: 752-755.
2. Courtwright, A., et al. 2009. Secreted frizzle-related protein 2 stimulates angiogenesis via a calcineurin/NFAT signaling pathway. *Cancer Res.* 69: 4621-4628.
3. Kasashima, H., et al. 2020. Stromal SOX2 upregulation promotes tumorigenesis through the generation of a SFRP1/2-expressing cancer-associated fibroblast population. *Dev. Cell* 56: 95-110.e10.

RESEARCH USE

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