

ROR2 siRNA (h): sc-72390

BACKGROUND

ROR2 (receptor tyrosine kinase-like orphan receptor 2), also known as neurotrophic tyrosine kinase receptor-related 2 (NTRKR2), is a single-pass transmembrane tyrosine-protein kinase receptor. It contains a cytoplasmic tyrosine kinase domain, distally located serine-threonine-rich domains, an extracellular immunoglobulin-like domain, a cysteine-rich domain and a kringle domain. ROR2 is important for both skeletal and endocrine development and is required for cartilage and growth plate development. It promotes the differentiation of osteoblasts and plays an important role in the early formation of chondrocytes. ROR2 sequesters and associates with Dlxin-1, affecting the transcriptional function of Msx-2. ROR2 also interacts with canonical Wnt-1 and Wnt-3, regulating their signaling pathways. Defects in ROR2 can result in the autosomal dominant skeletal disorder, brachydactyly type B1, or the autosomal recessive skeletal disorder, Robinow syndrome.

REFERENCES

- Schwabe, G.C., et al. 2000. Distinct mutations in the receptor tyrosine kinase gene ROR2 cause brachydactyly type B. *Am. J. Hum. Genet.* 67: 822-831.
- Afzal, A.R., et al. 2000. Recessive Robinow syndrome, allelic to dominant brachydactyly type B, is caused by mutation of ROR2. *Nat. Genet.* 25: 419-422.
- Oishi, I., et al. 2003. The receptor tyrosine kinase ROR2 is involved in non-canonical Wnt-5a/JNK signalling pathway. *Genes Cells* 8: 645-654.
- Matsuda, T., et al. 2003. The receptor tyrosine kinase ROR2 associates with the melanoma-associated antigen (MAGE) family protein Dlxin-1 and regulates its intracellular distribution. *J. Biol. Chem.* 278: 29057-29064.

CHROMOSOMAL LOCATION

Genetic locus: ROR2 (human) mapping to 9q22.31.

PRODUCT

ROR2 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 ROR2 shRNA Plasmid (h): sc-72390-SH and ROR2 shRNA (h) Lentiviral Particles: sc-72390-V as alternate gene silencing products.

For independent verification of ROR2 (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-72390A, sc-72390B and sc-72390C.

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

ROR2 siRNA (h) is recommended for the inhibition of ROR2 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 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

ROR2 (H-1): sc-374174 is recommended as a control antibody for monitoring of ROR2 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 ROR2 gene expression knockdown using RT-PCR Primer: ROR2 (h)-PR: sc-72390-PR (20 μ l). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

- Dai, B., et al. 2017. ROR2 receptor promotes the migration of osteosarcoma cells in response to Wnt5a. *Cancer Cell Int.* 17: 112.
- 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.
- Chen, T., et al. 2021. Dual role of WNT5A in promoting endothelial differentiation of glioma stem cells and angiogenesis of glioma derived endothelial cells. *Oncogene* 40: 5081-5094.

RESEARCH USE

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