

BMPR-II siRNA (h): sc-40220

BACKGROUND

Members of the transforming growth factor β superfamily bind to a pair of transmembrane proteins, known as receptor types I and II, which contain serine/threonine kinases and associate to form a signaling complex. Two type I receptors have been characterized, BMPR-IA (also designated SKR5, ALK-3 and BRK-1) and BMPR-IB (also designated ALK-6 and SKR 6), that bind to bone morphogenetic proteins (BMP-2), BMP-4 and osteogenic protein (OP)-1 (also designated BMP-7). BMPR-IA and BMPR-IB are both expressed in human glioma cell lines. The type II receptor, BMPR-II, efficiently binds to OP-1 and BMP-2 and weakly binds BMP-4, and it is widely expressed in different tissues, including brain. The BMP receptor family members are thought to mediate distinct effects on gene expression, cell differentiation and morphogenesis in a dose dependent fashion.

REFERENCES

1. ten Dijke, P., et al. 1994. Identification of type I receptors for osteogenic protein-1 and bone morphogenetic protein-4. *J. Biol. Chem.* 269: 16985-16988.
2. Rosenzweig, B.L., et al. 1995. Cloning and characterization of a human type II receptor for bone morphogenetic proteins. *Proc. Natl. Acad. Sci. USA* 92: 7632-7636.
3. Liu, F., et al. 1995. Human type II receptor for bone morphogenetic proteins (BMPs): extension of the two-kinase receptor model to the BMPs. *Mol. Cell. Biol.* 15: 3479-3486.

CHROMOSOMAL LOCATION

Genetic locus: BMPR2 (human) mapping to 2q33.1.

PRODUCT

BMPR-II 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 BMPR-II shRNA Plasmid (h): sc-40220-SH and BMPR-II shRNA (h) Lentiviral Particles: sc-40220-V as alternate gene silencing products.

For independent verification of BMPR-II (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-40220A, sc-40220B and sc-40220C.

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

BMPR-II siRNA (h) is recommended for the inhibition of BMPR-II 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

BMPR-II (E-1): sc-393304 is recommended as a control antibody for monitoring of BMPR-II 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 BMPR-II gene expression knockdown using RT-PCR Primer: BMPR-II (h)-PR: sc-40220-PR (20 μ l, 538 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, J.E., et al. 2012. Nongenomic Stat5-dependent effects on Golgi apparatus and endoplasmic reticulum structure and function. *Am. J. Physiol., Cell Physiol.* 302: C804-C820.
2. Yang, Y.M., et al. 2013. Subcellular mechanisms in pulmonary arterial hypertension: combinatorial modalities that inhibit anterograde trafficking and cause bone morphogenetic protein receptor type 2 mislocalization. *Pulm. Circ.* 3: 533-550.
3. Hekmatnejad, B., et al. 2014. SUMOylated α NAC potentiates transcriptional repression by FIAT. *J. Cell. Biochem.* 115: 866-873.

RESEARCH USE

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