SANTA CRUZ BIOTECHNOLOGY, INC.

IGFBP3R siRNA (h): sc-93360

BACKGROUND

The Insulin-like growth factor-binding proteins (IGFBPs), a family of homologous proteins that have co-evolved with the IGFs, serve not only as shuttle molecules for the soluble IGFs, but also confer a level of regulation to the IGF signaling system. Physical association of the IGFBPs with IGF influences the bio-availability of the growth factors, and their concentration and distribution in the extracellular environment. The IGFBPs also appear to have biological activity independent of the IGFs. IGFBP3, the most abundant IGFBP, is complexed with roughly 80% of the serum IGFs. Both IGFBP3 and IGFBP4 are released by dermal fibroblasts in response to incision injury. IGFBP3R (Insulin-like growth factor-binding protein 3 receptor), also known as TMEM219, is a 240 amino acid single-pass membrane cell death receptor specific for IGFBP3. Widely expressed in normal tissues but suppressed in prostate and breast tumor, IGFBP3R may mediate caspase-8-dependent apoptosis upon ligand binding. The IGFBP3/IGFBP3R system is suggested to play a pivotal role in the pathogenesis of asthma and may potentially serve as a therapeutic target for this disease.

REFERENCES

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2. Binoux, M. 1995. The IGF system in metabolism regulation. Diabete Metab. 21: 330-337.
3. Baxter, R.C. 1995. Insulin-like growth factor binding proteins as gluco-regulators. Metab. Clin. Exp. 44: 12-17.
4. Kelley, K.M., et al. 1996. Insulin-like growth factor-binding proteins (IGFBPs) and their regulatory dynamics. Int. J. Biochem. Cell Biol. 28: 619-637.
5. Ingermann, A.R., et al. 2010. Identification of a novel cell death receptor mediating IGFBP-3-induced anti-tumor effects in breast and prostate cancer. J. Biol. Chem. 285: 30233-30246.
6. Lee, Y.C., et al. 2011. Insulin-like growth factor-binding protein-3 (IGFBP-3) blocks the effects of asthma by negatively regulating NFκB signaling through IGFBP-3R-mediated activation of caspases. J. Biol. Chem. 286: 17898-17909.

CHROMOSOMAL LOCATION

Genetic locus: TMEM219 (human) mapping to 16p11.2.

PRODUCT

IGFBP3R siRNA (h) is a pool of 2 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 IGFBP3R shRNA Plasmid (h): sc-93360-SH and IGFBP3R shRNA (h) Lentiviral Particles: sc-93360-V as alternate gene silencing products.

For independent verification of IGFBP3R (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-93360A and sc-93360B.

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

IGFBP3R siRNA (h) is recommended for the inhibition of IGFBP3R 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor IGFBP3R gene expression knockdown using RT-PCR Primer: IGFBP3R (h)-PR: sc-93360-PR (20 µl, 416 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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