



IGFBP2 siRNA (h): sc-37195

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. Seven IGFBPs have been described, each differing in their tissue distribution, half-lives and modulation of IGF interactions with their receptors. IGFBP1 is negatively regulated by Insulin production. The IGFBP1 gene is expressed at a high level during fetal liver development and in response to nutritional changes and diabetes. IGFBP2, which may function as a chaperone, escorting IGFs to their target tissues, is expressed in several human tissues including fetal eye and fetal brain. 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. IGFBP5 is secreted by myoblasts and may play a key role in muscle differentiation. IGFBP6 differs from other IGFBPs in having the highest affinity for IGF-II. Glycosylated human IGFBP6 is expressed in Chinese hamster ovary (CHO) cells, whereas non-glycosylated recombinant human IGFBP-6 is expressed in *E. coli*. IGFBP7, a secreted protein that binds both IGF-I and IGF-II with a relatively low affinity, stimulates prostacyclin production and may also function as a growth-suppressing factor.

CHROMOSOMAL LOCATION

Genetic locus: IGFBP2 (human) mapping to 2q35.

PRODUCT

IGFBP2 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 IGFBP2 shRNA Plasmid (h): sc-37195-SH and IGFBP2 shRNA (h) Lentiviral Particles: sc-37195-V as alternate gene silencing products.

For independent verification of IGFBP2 (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-37195A, sc-37195B and sc-37195C.

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

IGFBP2 siRNA (h) is recommended for the inhibition of IGFBP2 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

IGFBP2 (C-10): sc-25285 is recommended as a control antibody for monitoring of IGFBP2 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 IGFBP2 gene expression knockdown using RT-PCR Primer: IGFBP2 (h)-PR: sc-37195-PR (20 μ l, 344 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Migita, T., et al. 2010. Role of Insulin-like growth factor binding protein 2 in lung adenocarcinoma: IGF-independent antiapoptotic effect via caspase-3. *Am. J. Pathol.* 176: 1756-1766.
2. Feng, N., et al. 2015. Insulin-like growth factor binding protein-2 promotes adhesion of endothelial progenitor cells to endothelial cells via integrin $\alpha 5 \beta 1$. *J. Mol. Neurosci.* 57: 426-434.
3. Zhou, Z., et al. 2019. Activation of EGFR-DNA-PK $_{cs}$ pathway by IGFBP2 protects esophageal adenocarcinoma cells from acidic bile salts-induced DNA damage. *J. Exp. Clin. Cancer Res.* 38: 13.
4. Zhou, W., et al. 2024. A novel AML1-ETO/FTO positive feedback loop promotes leukemogenesis and Ara-C resistance via stabilizing IGFBP2 in t(8;21) acute myeloid leukemia. *Exp. Hematol. Oncol.* 13: 9.

RESEARCH USE

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