SANTA CRUZ BIOTECHNOLOGY, INC.

IGF-I siRNA (h): sc-37193

BACKGROUND

Insulin-like growth factor I, or IGF-I, is an ubiquitous peptide that acts in both an autocrine and paracrine fashion to stimulate the growth of vascular smooth muscle cells. In addition, IGF-I regulates renal function, growth and repair, is critically involved in bone formation and resorption; and has been implicated in mediating aspects of the immune response. IGF function is modulated by at least six circulating IGF-binding proteins, designated IGFBP1-6, which associate with the soluble growth factor. While the function of IGF-II is less well understood, overexpression of the protein in mice suggests that IGF-II may play a regulatory role in Insulin sensitivity and glucose uptake. Both IGF-I and IGF-II exert their biological effects through a common receptor, designated IGF-IR. Like the Insulin receptor, IGF-IR is composed of two extracellular α chains and two signal transducing β chains cross-linked by disulfide bonds.

REFERENCES

1. Rabkin, R., et al. 1995. Expression of the genes encoding the rat renal Insulin-like growth factor-I system. J. Am. Soc. Nephrol. 6: 1511-1518.
2. Hayden, J.M., et al. 1995. The Insulin-like growth factor system and the coupling of formation to resorption. Bone 17: 93S-98S.
3. Auernhammer, C.J. and Strasburger, C.J. 1995. Effects of growth hormone and Insulin-like growth factor-I on the immune system. Eur. J. Endocrinol. 133: 635-645.
4. Motani, A., et al. 1995. Insulin-like growth factor binding protein-I inhibits arterial smooth muscle cell proliferation *in vitro* but does not reduce the neointimal response to balloon catheter injury. Atherosclerosis 118: 57-66.

CHROMOSOMAL LOCATION

Genetic locus: IGF1 (human) mapping to 12q23.2.

PRODUCT

IGF-I 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 IGF-I shRNA Plasmid (h): sc-37193-SH and IGF-I shRNA (h) Lentiviral Particles: sc-37193-V as alternate gene silencing products.

For independent verification of IGF-I (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-37193A and sc-37193B.

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

IGF-I siRNA (h) is recommended for the inhibition of IGF-I 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.

GENE EXPRESSION MONITORING

IGF-I (W18): sc-74116 is recommended as a control antibody for monitoring of IGF-I 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 IGF-I gene expression knockdown using RT-PCR Primer: IGF-I (h)-PR: sc-37193-PR (20 µl, 537 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Fong, Y.C., et al. 2008. Osteoblast-derived TGF-β1 stimulates IL-8 release through AP-1 and NFκB in human cancer cells. J. Bone Miner. Res. 23: 961-970.
2. Oh, Y.I., et al. 2011. Involvement of Insulin-like growth factor-I secretion and all-*trans*-retinoic acid-induced decrement in viability in MCF-7 cells. Chemotherapy 57: 17-26.
3. Ukaji, T., et al. 2015. Inhibition of IGF-1-mediated cellular migration and invasion by migracin A in ovarian clear cell carcinoma cells. PLoS ONE 10: e0137663.
4. Almeida-Nunes, D.L., et al. 2024. Metformin impairs linsitinib anti-tumor effect on ovarian cancer cell lines. Int. J. Mol. Sci. 25: 11935.

RESEARCH USE

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