SANTA CRUZ BIOTECHNOLOGY, INC.

IGF-I siRNA (m): sc-37194

BACKGROUND

Insulin-like growth factor I, or IGF-I, is a 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.

CHROMOSOMAL LOCATION

Genetic locus: Igf1 (mouse) mapping to 10 C1.

PRODUCT

IGF-I siRNA (m) is a target-specific 19-25 nt siRNA 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 (m): sc-37194-SH and IGF-I shRNA (m) Lentiviral Particles: sc-37194-V as alternate gene silencing products.

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 (m) is recommended for the inhibition of IGF-I expression in mouse 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.

RESEARCH USE

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

GENE EXPRESSION MONITORING

IGF-I (H-9): sc-518040 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 (m)-PR: sc-37194-PR (20 µl, 536 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wu, S., et al. 2012. Fibroblast growth factor 21 (FGF21) inhibits chondrocyte function and growth hormone action directly at the growth plate. J. Biol. Chem. 287: 26060-26067.
2. Shen, G., et al. 2014. Upstream and downstream mechanisms for the promoting effects of IGF-1 on differentiation of spermatogonia to primary spermatocytes. Life Sci. 101: 49-55.
3. Wu, S., et al. 2015. Insulin-like growth factor-independent effects of growth hormone on growth plate chondrogenesis and longitudinal bone growth. Endocrinology 156: 2541-2551.
4. Hou, J., et al. 2017. Mesenchymal stem cells promote endothelial progenitor cell proliferation by secreting Insulin-like growth factor-1. Mol. Med. Rep. 16: 1502-1508.
5. Wen, X., et al. 2022. DR1 activation promotes vascular smooth muscle cell apoptosis via up-regulation of CSE/H_2S pathway in diabetic mice. FASEB J. 36: e22070.
6. Liu, Z., et al. 2022. Single-cell transcriptome analyses reveal microglia types associated with proliferative retinopathy. JCI Insight 7: e160940.

PROTOCOLS

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