SANTA CRUZ BIOTECHNOLOGY, INC.

HB-EGF siRNA (h): sc-39420

BACKGROUND

Heparin-binding epidermal-like growth factor (HB-EGF), a member of the EGF family of mitogens, binds to the EGF receptor (EGFR) and to heparin sulfate proteoglycans on the cell surface. HB-EGF was originally isolated from medium conditioned by the growth of the human histocytic lymphoma cell U-937 on the basis of its heparin-binding ability and its mitogenic activity for Balb/3T3 fibroblasts. The HB-EGF gene encodes a 208 amino acid precursor containing a signal peptide and transmembrane domain. Mature HB-EGF is a soluble protein, 86 amino acids in length, and results from the enzymatic cleavage of the membrane-bound precursor. The membrane-bound form of HB-EGF has been identified as the diphtheria toxin receptor. Preincubation of Vero cells with phorbol 12-myristate 13-acetate (PMA) induces the proteolytic cleavage of HB-EGF outside the membrane anchor.

HROMOSOMAL LOCATION

Genetic locus: HBEGF (human) mapping to 5q31.3.

PRODUCT

HB-EGF siRNA (h) 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 HB-EGF shRNA Plasmid (h): sc-39420-SH and HB-EGF shRNA (h) Lentiviral Particles: sc-39420-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

HB-EGF siRNA (h) is recommended for the inhibition of HB-EGF 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.

RESEARCH USE

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

GENE EXPRESSION MONITORING

HB-EGF (G-11): sc-74441 is recommended as a control antibody for monitoring of HB-EGF 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 HB-EGF gene expression knockdown using RT-PCR Primer: HB-EGF (h)-PR: sc-39420-PR (20 µl, 449 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yang, M., et al. 2014. miR-96 promotes osteogenic differentiation by suppressing HBEGF-EGFR signaling in osteoblastic cells. FEBS Lett. 588: 4761-4768.
2. Nagahara, T., et al. 2015. Hepatic stellate cells promote upregulation of epithelial cell adhesion molecule and epithelial-mesenchymal transition in hepatic cancer cells. Oncol. Rep. 34: 1169-1177.
3. He, C., et al. 2015. YAP forms autocrine loops with the ERBB pathway to regulate ovarian cancer initiation and progression. Oncogene 34: 6040-6054.
4. Wang, L., et al. 2020. HB-EGF activates the EGFR/HIF-1α pathway to induce proliferation of arsenic-transformed cells and tumor growth. Front. Oncol. 10: 1019.
5. Tian, S., et al. 2022. Targeted intracellular delivery of Cas13 and Cas9 nucleases using bacterial toxin-based platforms. Cell Rep. 38: 110476.
6. Guo, G., et al. 2022. EGFR ligand shifts the role of EGFR from oncogene to tumour suppressor in EGFR-amplified glioblastoma by suppressing invasion through BIN3 upregulation. Nat. Cell Biol. 24: 1291-1305.

PROTOCOLS

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