SANTA CRUZ BIOTECHNOLOGY, INC.

BTC siRNA (h): sc-39414

BACKGROUND

Betacellulin (BTC), a member of the epidermal growth factor (EGF) family, was originally identified as a growth-promoting factor in the conditioned medium of a mouse pancreatic-cell carcinoma (insulinoma) cell line and has since been identified in humans. BTC is synthesized as a large transmembrane precursor molecule that can be cleaved proteolytically to release the soluble form of BTC or function as membrane-anchored growth factors in juxtacrine signaling. BTC, in addition to stimulating homodimers of ErbB-1 and ErbB-4, is capable of binding and activating all possible combinations of heterodimeric ErbB receptors including the oncogenic ErbB-2/ErbB-3 complex. BTC is also expressed in some human malignancies and may have an important role in tumor growth progression.

REFERENCES

1. Shing, Y., et al. 1993. Betacellulin: a mitogen from pancreatic β cell tumors. Science 259: 1604-1607.
2. Sasada, R., et al. 1993. Cloning and expression of cDNA encoding human betacellulin, a new member of the EGF family. Biochem. Biophys. Res. Commun. 190: 1173-1179.
3. Alimandi, M., et al. 1997. Epidermal growth factor and betacellulin mediate signal transduction through co-expressed ErbB2 and ErbB3 receptors. EMBO J. 16: 5608-5617.
4. Pinkas-Kramarski, R., et al. 1998. The oncogenic ErbB-2/ErbB-3 heterodimer is a surrogate receptor of the epidermal growth factor and betacellulin. Oncogene 16: 1249-1258.
5. Dunbar, A.J., et al. 1999. Identification of betacellulin as a major peptide growth factor in milk: purification, characterization and molecular cloning of bovine betacellulin. Biochem. J. 344: 713-721.
6. Kawaguchi, M., et al. 2000. Auto-induction and growth stimulatory effect of betacellulin in human pancreatic cancer cells. Int. J. Oncol. 16: 37-41.
7. O-charoenrat, P., et al. 2000. Epidermal growth factor-like ligands differentially upregulate matrix metalloproteinase 9 in head and neck squamous carcinoma cells. Cancer Res. 60: 1121-1128.

CHROMOSOMAL LOCATION

Genetic locus: BTC (human) mapping to 4q13.3.

PRODUCT

BTC 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BTC shRNA Plasmid (h): sc-39414-SH and BTC shRNA (h) Lentiviral Particles: sc-39414-V as alternate gene silencing products.

For independent verification of BTC (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-39414A, sc-39414B and sc-39414C.

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

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

BTC (E-12): sc-514061 is recommended as a control antibody for monitoring of BTC 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 BTC gene expression knockdown using RT-PCR Primer: BTC (h)-PR: sc-39414-PR (20 µl). 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.