SANTA CRUZ BIOTECHNOLOGY, INC.

Amphiregulin siRNA (h): sc-39412

BACKGROUND

Epidermal growth factor (EGF) family member Amphiregulin was initially characterized as a schwannoma-derived growth factor (SDGF) that was expressed in response to androgen in the SC2G murine cell line. Amphiregulin has subsequently been characterized as an important growth factor for normal human keratinocyte proliferation. Amphiregulin is produced and secreted by keratinocytes and acts as an autocrine growth factor. Amphiregulin binds ErbB-1, which is essential for epithelial development in the skin, lung and gastrointestinal tract. Withdrawl of Amphiregulin has been shown to result in down regulation of telomerase activity in human keratinocytes and this suggests that Amphiregulin plays a role in cell senescence.

REFERENCES

1. Cook, P.W., et al. 1991. A heparin sulfate-regulated human keratinocyte autocrine factor is similar or identical to Amphiregulin. Mol. Cell. Biol. 11: 2547-2557.
2. Sonoda, H., et al. 1992. Androgen-responsive expression and mitogenic activity of schwannoma-derived growth factor on an androgen-dependent Shionogi mouse mammary carcinoma cell line. Biochem. Biophys. Res. Commun. 185: 103-109.
3. Elenius, K., et al. 1997. Activation of HER4 by heparin-binding EGF-like growth factor stimulates chemotaxis but not proliferation. EMBO J. 16: 1268-1278.

CHROMOSOMAL LOCATION

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

PRODUCT

Amphiregulin 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 Amphiregulin shRNA Plasmid (h): sc-39412-SH and Amphiregulin shRNA (h) Lentiviral Particles: sc-39412-V as alternate gene silencing products.

For independent verification of Amphiregulin (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-39412A, sc-39412B and sc-39412C.

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

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

Amphiregulin (G-4): sc-74501 is recommended as a control antibody for monitoring of Amphiregulin 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 Amphiregulin gene expression knockdown using RT-PCR Primer: Amphiregulin (h)-PR: sc-39412-PR (20 µl, 452 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gilmore, J.L., et al. 2009. Reconstitution of Amphiregulin-epidermal growth factor receptor signaling in lung squamous cell carcinomas activates PTHrP gene expression and contributes to cancer-mediated diseases of the bone. Mol. Cancer Res. 7: 1714-1728.
2. Shimada, H., et al. 2017. Loss of tricellular tight junction protein LSR promotes cell invasion and migration via upregulation of TEAD1/AREG in human endometrial cancer. Sci. Rep. 7: 37049.
3. Tokunaga, S., et al. 2017. Amphiregulin as a novel resistance factor for amrubicin in lung cancer cells. Anticancer Res. 37: 2225-2231.
4. Kyuno, T., et al. 2020. Tricellular tight junction protein LSR/angulin-1 contributes to the epithelial barrier and malignancy in human pancreatic cancer cell line. Histochem. Cell Biol. 153: 5-16.

RESEARCH USE

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