SANTA CRUZ BIOTECHNOLOGY, INC.

ANG I siRNA (h): sc-39291

BACKGROUND

Angiogenesis is defined as the process of neovascularization and formation of new blood vessels from the established micro-circulation. Angiogenin (ANG or ANG I) is a non-glycosylated polypeptide, 123 amino acids in length, whose function is central to this process. ANG I shows a high degree of homology with known ribonucleases such as pancreatic ribonuclease A, and the capacity of ANG I to induce blood vessel growth is critically dependent on its ribonucleolytic activity. ANG I is thought to be involved in the development of solid tumors, and ANG I antagonists are capable of inhibiting tumor growth. By a poorly understood mechanism, ANG I is endocytosed by subconfluent endothelial cells and translocated to the nucleus where it accumulates in the nucleolus. The ANG I receptor has not yet been identified.

REFERENCES

1. Weremowicz, S., et al. 1989. Assignment of human angiogenin gene to chromosome 14q11-q13. Cytogenet. Cell Genet. 51: 1107.
2. Weremowicz, S., et al. 1990. Localization of the human angiogenin gene to chromosome band 14q11, proximal to the T cell receptor α/δ locus. Am. J. Hum. Genet. 47: 973-981.
3. Diaz-Flores, L., et al. 1994. Angiogenesis: an update. Histol. Histopathol. 9: 807-843.
4. Hu, G., et al. 1994. Angiogenin promotes invasiveness of cultured endothelial cells by stimulation of cell-associated proteolytic activities. Proc. Natl. Acad. Sci. USA 91: 12096-12100.
5. Reisdorf, C., et al. 1994. Proton resonance assignments and secondary structure of bovine angiogenin. Eur. J. Biochem. 224: 811-822.

CHROMOSOMAL LOCATION

Genetic locus: ANG (human) mapping to 14q11.2.

PRODUCT

ANG I 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 ANG I shRNA Plasmid (h): sc-39291-SH and ANG I shRNA (h) Lentiviral Particles: sc-39291-V as alternate gene silencing products.

For independent verification of ANG 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-39291A, sc-39291B and sc-39291C.

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

ANG I siRNA (h) is recommended for the inhibition of ANG 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

ANG I (C-1): sc-74528 is recommended as a control antibody for monitoring of ANG 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 ANG I gene expression knockdown using RT-PCR Primer: ANG I (h)-PR: sc-39291-PR (20 µl, 462 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Giacomelli, C., et al. 2015. Copper (II) ions modulate angiogenin activity in human endothelial cells. Int. J. Biochem. Cell Biol. 60: 185-196.
2. Zhou, X., et al. 2018. HBV facilitated hepatocellular carcinoma cells proliferation by up-regulating angiogenin expression through IL-6. Cell. Physiol. Biochem. 46: 461-470.

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.