SANTA CRUZ BIOTECHNOLOGY, INC.

Ang IV siRNA (m): sc-39298

BACKGROUND

Angiogenins (ANGs) are basic proteins that are members of the pancreatic ribonuclease superfamily and are known to induce the formation of new blood vessels by catalyzing the 3'-cleavage of pyrimidines via a transphosphorylation/hydrolysis mechanism. Angiogenin-4 (ANG IV) is primarily expressed in the gut and pancreas, suggesting that it may play a role in gut angiogenesis. In addition, ANG IV may also be involved in innate immunity and regulation of gut microflora. Angiogenins can also participate in rRNA transcription in endothelial cells where nuclear translocation of angiogenin decreases as cell density increases, and ceases when cells are confluent. Downregulation of ANG expression by antisense and RNA interference results in a decrease in rRNA transcription, ribosome biogenesis, proliferation and tumorigenesis both *in vitro* and *in vivo*. Angiogenins can activate cell-associated proteases, induce cell invasion and migration, stimulate cell proliferation, and organize cultured cells to form tubular structures.

REFERENCES

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2. Liu, S., et al. 2001. Angiogenin activates Erk1/2 in human umbilical vein endothelial cells. Biochem. Biophys. Res. Commun. 287: 305-310.
3. Ganz, T. 2003. Angiogenin: an antimicrobial ribonuclease. Nat. Immunol. 4: 213-214.
4. Hisai, H., et al. 2003. Increased expression of angiogenin in hepatocellular carcinoma in correlation with tumor vascularity. Clin. Cancer Res. 9: 4852-4859.
5. Hooper, L.V., et al. 2003. Angio-genins: a new class of microbicidal proteins involved in innate immunity. Nat. Immunol. 4: 269-273.
6. Tsuji, T., et al. 2005. Angiogenin is translocated to the nucleus of HeLa cells and is involved in ribosomal RNA transcription and cell proliferation. Cancer Res. 65: 1352-1360.
7. Zhao, H., et al. 2005. Increased plasma levels of angiogenin and the risk of bladder carcinoma: from initiation ot recurrence. Cancer 104: 30-35.
8. Song, J., et al. 2006. Influence of angiogenin on the growth of A375 human melanoma cells and the expression of basic fibroblast growth factor. Melanoma Res. 16: 119-126.
9. Crabtree, B., et al. 2007. Biological and structural features of murine angiogenin-4, an angiogenic protein. Biochemistry 46: 2431-2443.

CHROMOSOMAL LOCATION

Genetic locus: Ang4 (mouse) mapping to 14 C2.

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.

PRODUCT

ANG IV siRNA (m) 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 IV shRNA Plasmid (m): sc-39298-SH and ANG IV shRNA (m) Lentiviral Particles: sc-39298-V as alternate gene silencing products.

For independent verification of ANG IV (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-39298A, sc-39298B and sc-39298C.

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 IV siRNA (m) is recommended for the inhibition of ANG IV 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ANG IV gene expression knockdown using RT-PCR Primer: ANG IV (m)-PR: sc-39298-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.