

ANG III/IV siRNA (m): sc-39296

BACKGROUND

Angiogenins (ANG) are basic proteins that belong to 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. ANG III (also designated Rnase5c and angiogenin related protein 2) induces angiogenesis in both the chicken embryo chorioallantoic membrane assay and the rat cremaster muscle. Endothelial cells within vessels induced by both mouse ANG III and mouse ANG contain fenestrations similar to those observed in endothelial cells from neovasculature induced by VEGF and bFGF. Angiogenins also play a role in rRNA transcription in endothelial cells where nuclear translocation of angiogenin decreases as cell density increases, and ceases when cells are confluent. Downregulation of angiogenin 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. Holloway, D.E., et al. 2001. High-level expression of three members of the murine angiogenin family in *Escherichia coli* and purification of the recombinant proteins. *Protein Expr. Purif.* 22: 307-317.
3. Xu, Z., et al. 2001. Angiogenin activates human umbilical artery smooth muscle cells. *Biochem. Biophys. Res. Commun.* 285: 909-914.
4. Liu, S., et al. 2001. Angiogenin activates Erk1/2 in human umbilical vein endothelial cells. *Biochem. Biophys. Res. Commun.* 287: 305-310.
5. Ganz, T. 2003. Angiogenin: an antimicrobial ribonuclease. *Nat. Immunol.* 4: 213-214.
6. Hisai, H., et al. 2003. Increased expression of angiogenin in hepatocellular carcinoma in correlation with tumor vascularity. *Clin. Cancer Res.* 9: 4852-4859.
7. 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.
8. Zhao, H., et al. 2005. Increased plasma levels of angiogenin and the risk of bladder carcinoma: from initiation to recurrence. *Cancer* 104: 30-35.
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CHROMOSOMAL LOCATION

Genetic locus: Ang3/Ang5 (mouse) mapping to 14 C1.

PROTOCOLS

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

PRODUCT

ANG III/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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ANG III/IV shRNA Plasmid (m): sc-39296-SH and ANG III/IV shRNA (m) Lentiviral Particles: sc-39296-V as alternate gene silencing products.

For independent verification of ANG III/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-39296A, sc-39296B and sc-39296C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ANG III/IV siRNA (m) is recommended for the inhibition of ANG III/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 μ M in 66 μ l. 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 III/IV gene expression knockdown using RT-PCR Primer: ANG III/IV (m)-PR: sc-39296-PR (20 μ l, 312 bp). 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.