10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

ANG Antibody

Catalog # ASC11527

Product Information

Application	WB, IF, E
Primary Accession	P03950
Other Accession	NP_001136, 4557313
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	16550
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	ANG antibody can be used for detection of ANG by Western blot at 1 - 2 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	283
Other Names	Angiogenin, 3.1.27.-, Ribonuclease 5, RNase 5, ANG, RNASE5
Target/Specificity	ANG; Two alternatively spliced transcript variants have been observed.
Reconstitution & Storage	ANG antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	ANG Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ANG {ECO:0000303|PubMed:11919285, ECO:0000312|HGNC:HGNC:483}
Function	Secreted ribonuclease that can either promote or restrict cell proliferation of target cells, depending on the context (PubMed:12051708, PubMed:1400510, PubMed:19332886, PubMed:20129916, PubMed:21855800, PubMed:23047679, PubMed:23843625, PubMed:2424496, PubMed:2459697, PubMed:2730651, PubMed:27518564, PubMed:28176817, PubMed:29100074, PubMed:29748193, PubMed:3122207, PubMed:32510170, PubMed:38718836, PubMed:8159680, PubMed:8570639, PubMed:8622921, PubMed:9578571). Endocytosed in target cells via its receptor PLXNB2 and translocates to the cytoplasm or nucleus (PubMed:29100074, PubMed:32510170). Under stress conditions, localizes to the cytoplasm and promotes the assembly of stress granules (SGs): specifically cleaves a subset of tRNAs within anticodon loops

	to produce tRNA- derived stress-induced fragments (tiRNAs), resulting in translation repression and inhibition of cell proliferation (PubMed:1400510, PubMed:19332886, PubMed:20129916, PubMed:21855800, PubMed:23047679, PubMed:27518564, PubMed:29100074, PubMed:29748193, PubMed:32510170, PubMed:38718836). tiRNas also prevent formation of apoptosome, thereby promoting cell survival (By similarity). Preferentially cleaves RNAs between a pyrimidine and an adenosine residue, suggesting that it cleaves the anticodon loop of tRNA(Ala) (32-UUAGCAU-38) after positions 33 and 36 (PubMed:3289612, PubMed:38718836). Cleaves a subset of tRNAs, including tRNA(Ala), tRNA(Glu), tRNA(Gly), tRNA(Lys), tRNA(Val), tRNA(His), tRNA(Asp) and tRNA(Sec) (PubMed:31582561). Under growth conditions and in differentiated cells, translocates to the nucleus and stimulates ribosomal RNA (rRNA) transcription, including that containing the initiation site sequences of 45S rRNA, thereby promoting cell growth and proliferation (PubMed:12051708, PubMed:15735021, PubMed:27518564, PubMed:29100074, PubMed:8127865). Angiogenin induces vascularization of normal and malignant tissues via its ability to promote rRNA transcription (PubMed:19354288, PubMed:4074709, PubMed:8448182). Involved in hematopoietic stem and progenitor cell (HSPC) growth and survival by promoting rRNA transcription in growth conditions and inhibiting translation in response to stress, respectively (PubMed:27518564). Mediates the crosstalk between myeloid and intestinal epithelial cells to protect the intestinal epithelial barrier integrity: secreted by myeloid cells and promotes intestinal epithelial cells proliferation and survival (PubMed:32510170). Also mediates osteoclast-endothelial cell crosstalk in growing bone: produced by osteoclasts and protects the neighboring vascular cells against senescence by promoting rRNA transcription (By similarity).
Cellular Location	Secreted. Nucleus. Nucleus, nucleolus. Cytoplasm, Stress granule. Note=The secreted protein is rapidly endocytosed by target cells following interaction with PLXNB2 receptor and translocated to the cytoplasm and nucleus (PubMed:29100074). In the nucleus, accumulates in the nucleolus and binds to DNA (PubMed:12051708).
Tissue Location	Expressed predominantly in the liver (PubMed:2440105). Also detected in endothelial cells and spinal cord neurons (PubMed:17886298, PubMed:2440105)

Background

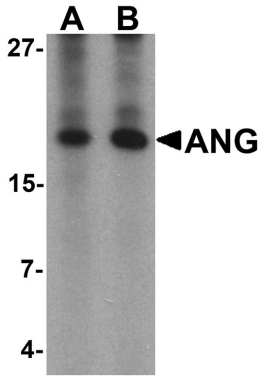
ANG Antibody: Angiogenin (ANG or ANG I) is important for the process of neovascularization and formation of new blood vessels. ANG is similar to pancreatic ribonuclease A and functions as a tRNA-specific ribonuclease that abolishes protein synthesis by specifically hydrolyzing cellular tRNAs. It interacts with endothelial cell-surface actin and may cause changes in the cell cytoskeleton. ANG is thought to be involved in the development of solid tumors and its antagonists are capable of inhibiting tumor growth. Defects in ANG are the cause of susceptibility to amyotrophic lateral sclerosis type 9 (ALS9). Angiogenin is a genetic link between ALS and PD.

References

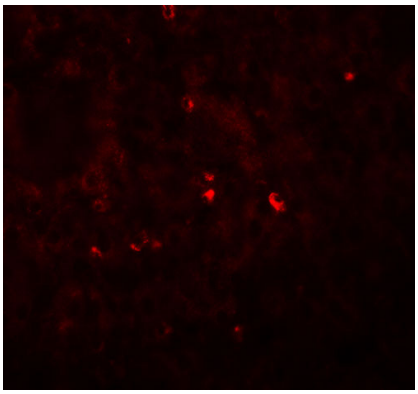
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Hu G, Riordan JF, and Vallee BL. Angiogenin promotes invasiveness of cultured endothelial cells by stimulation of cell-associated proteolytic activities. Proc. Natl. Acad. Sci. USA 1994; 91:12096-100.
Pyatibratov MG and Kostyukova AS. New insights into the role of angiogenin in actin polymerization. Int. Rev. Cell. Mol. Biol. 2012; 295:175-98.
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Cancer Ther. Rev. 2011; 7:83-90.

Images



Western blot analysis of ANG in rat liver tissue lysate with Ang antibody at (A) 1 and (B) 2 µg/mL.



Immunofluorescence of ANG in human liver tissue with ANG antibody at 20 µg/mL.

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