



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human Angiogenin Protein
Catalog Number: hRP-1886
Manufacturer: LD Biopharma, Inc.

Introduction

The protein encoded by human angiogenin (ANG) gene is an exceedingly potent mediator of new blood vessel formation. It hydrolyzes cellular tRNAs resulting in decreased protein synthesis and is similar to pancreatic ribonuclease. In addition, the mature peptide has antimicrobial activity against some bacteria and fungi, including *S. pneumoniae* and *C. albicans*. ANG protein binds to actin on the surface of endothelial cells; once bound, angiogenin is endocytosed and translocated to the nucleus. It stimulates ribosomal RNA synthesis including that containing the initiation site sequences of 45S rRNA. It cleaves tRNA within anti-codon loops to produce tRNA-derived stress-induced fragments (tiRNAs) which inhibit protein synthesis and triggers the assembly of stress granules (SGs). Angiogenin induces vascularization of normal and malignant tissues. Angiogenic activity is regulated by interaction with RNH1 in vivo. Recent data indicated that ANG promotes tumor cell growth and angiogenesis in solid cancers.

Full-length mature form of human angiogenin cDNA (25 – 147 aa) was constructed with codon optimization gene synthesis and expressed with a human Alpha Fetal protein N-terminal-His-TEV cleavage site Tag (217aa) fusion at FAP N-terminal. This protein was expressed in *E. coli* as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: ANG (ALS9; HEL168; RAA1; RNASE4; RNASE5)
Accession Number: NP_001136.1
Species: Human
Size: 50 µg / Vial
Composition: 0.5 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.



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Key References

Hevin A Goncalves, et al. *Mechanism and Function of Angiogenin in Hematopoietic Malignancy*. Chinese Journal of Biochemistry and Molecular Biology. Vol 31. Issue (12): 1267-1275 (2015)

He T, et al. *Tumor cell-secreted angiogenin induces angiogenic activity of endothelial cells by suppressing miR-542-3p*. Cancer Lett. 368 (1), 115-125 (2015)

Shu J, et al., *Downregulation of angiogenin inhibits the growth and induces apoptosis in human bladder cancer cells through regulating AKT/mTOR signaling pathway*. J. Mol. Histol. 46 (2), 157-171 (2015)

Applications

1. May be used for in vitro ANG mediated endothelial cell proliferation regulation study in tumor microenvironment with this protein either as soluble factor or as coating matrix protein.
2. May be used for protein-protein interaction mapping.
3. Potential anti-tumor therapeutic target protein for treatment of various tumor with ANG blocking antibodies.
4. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ
SSGCLNQLPAFLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT
SCEAYEEDRETFMNKFIEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT
KELRESSGGSHHHHHHGSENLYFQGQDNSRYTHFLTQHYDAKPQGRDDRYCESIMRRRGLTSPC
KDINTFIHGKRSIKAICENKNGNPHRENLRISKSSFQVTTCKLHGGSPWPPCQYRATAGFRNV
VVACENGLPVHLDQSIFRRP