



Recombinant Human Angiopoietin-2 (Ang-2)

20180418BB



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no.:	300-049
Size:	5 µg
Lot. No.:	According to product label

Scientific Background

Gene-ID (NCBI):	285
Synonyms:	ANGPT2; ANG2; AGPT2

Human Angiopoietin-2 (Ang-2), a 66 kDa protein consisting of 476 amino acid residues (N21-F496), is fused to a N-terminal myc-tag and produced in insect cells. The angiopoietin (Ang) family of growth factors includes four members, all of which bind to the endothelial receptor tyrosine kinase Tie2. Two of the Angs, Ang-1 and Ang-4, activate the Tie2 receptor, whereas Ang-2 and Ang-3 inhibit Ang-1-induced Tie2 phosphorylation. Angiopoietin-1 (Ang-1) is a secreted growth factor which binds to and activates the Tie-2 receptor tyrosine kinase. The factor enhances endothelial cell survival and capillary morphogenesis, and also limits capillary permeability. Ang-2 binds the same receptor but fails to activate it: hence, it is a natural inhibitor of Ang-1. Ang-2 destabilises capillary integrity, facilitating sprouting when ambient vascular endothelial growth factor (VEGF) levels are high, but causing vessel regression when VEGF levels are low. Tie-1 is a Tie-2 homologue but its ligands are unknown. Angiopoietin and Tie genes are expressed in the mammalian metanephros, the precursor of the adult kidney, where they may play a role in endothelial precursor growth. Tie-1-expressing cells can be detected in the metanephros when it first forms and, based on transplantation experiments, these precursors contribute to the generation of glomerular capillaries. During glomerular maturation, podocyte-derived Ang-1 and mesangial-cell-derived Ang-2 may affect growth of nascent capillaries. After birth, vasa rectae acquire their mature configuration and Ang-2 expressed by descending limbs of loops of Henle would be well placed to affect the growth of this medullary microcirculation. Finally, preliminary data implicate angiopoietins in deregulated vessel growth in Wilms' kidney tumours and in vascular remodelling after nephrotoxicity. Altogether, existing data suggest that VEGF-A and Angiopoietins not only have quite different roles during vascular development, but also very complementary and coordinated roles.

Sequence

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DAPLEYDDSVQRLQVLENIMENNTQWLMKLENYIQDNMCKEMVEIQQNAVQN
QTAVMIEIGTNLLNQTAEQTRKLTQVLEAQLVNLQTRLELQLEHSLSTNKLE
KQILDQTSEINKLQDKNSFLEKVLAMEDKHI IQLQSIKKEKDQLQVLVSKQ
NSIEELEKKIVTATVNNSVLQKQHDLMETVNNLLTMMSTSNKADPTVAK
EEQISFRDCAEVFKSGHTTNGIYTLTFPNSTEEIKAYCDMEAGGGGWTIIQR
REDGSVDFQRTWKEYKVGFGNPSGEYWLGNFVSQLTNQQRVYVKIHLKDW
GNEAYSLSYEHFYLSSEELNYRIHLKGLTGTAGKISSISQPGNDFSTKDGND
KCICKCSQMLTGGWFFDAGCPNSLNGMYYPQRQNTNKFNGIKWYWKGGSGYS
LKATTMIRPADFHSHHHHH
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Database References

Protein RefSeq:	NP_001138
Uniprot ID:	Q15123
mRNA RefSeq:	NM_001147.2

Product Specifications

Expressed in	CHO cells
Purity	> 95% by SDS-PAGE & HPLC analyses
Tag	His-Tag
Endotoxin level	< 0.1 ng /µg of protein (<1EU/µg).
Formulation	lyophilized
Length (aa):	435
MW:	60.0-70.0 kDa

Stability: The lyophilized protein is stable at room temperature for 1 month and at 4°C for 3 months. Reconstituted working aliquots are stable for 1 week at 2°C to 8°C and for 3 months at -20°C to -80°C.

Reconstitution: Centrifuge the vial prior to opening. Reconstitute in water to a concentration of 0.1-1.0 mg/ml. *Do not vortex.* This solution can be stored at 2-8°C for up to 1 week. For extended storage, it is recommended to further dilute in a buffer containing a carrier protein (example 0.1% BSA) and store in working aliquots at -20°C to -80°C.



AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Determined by its ability to stimulate tubulogenesis in HUVEC cells using a concentration of 0.2 µg/ml