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Recombinant Human Angiopoietin-1

Description: Human Angiopoietin-1 (Ang-1), a 66 kDa protein consisting of 476 amino acid residues (N21-F496), is fused to a C-terminal His-tag and produced in HeLa 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 destabilizes 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 tumors and in vascular remodeling 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.

Source:	HeLa cells
Molecular Weight:	60-70 kDa
Purity:	> 95%, by SDS-PAGE and visualized by silver stain
Endotoxin level:	< 0.1 ng per µg of Ang-1
Formulation:	lyophilized

Biological Activity: The biological activity was determined by the dose-dependent stimulation of the proliferation of human umbilical vein endothelial cells.

Stability: Ang-1 should be stored at -20°C for longer storage but is stable at 4°C for several weeks. **Avoid repeated freeze-thaw cycles!**

Usage: Ang-1 is offered for research use. Not for drug use. **Not for human use!**

Catalogue number: 300-047	Size: 5 µg
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Literature: [Fiedler et al., J Biol Chem 278:1721, 2003; Korff et al., FASEB J 15:447, 2001; Tsigkos et al., Expert Opin Investig Drugs 12:933,2003; Koh et al., Exp Mol Med. 34:1, 2002]

**** Please note: always centrifuge vials before opening!****