

Product Information

Angiopoietin 1, human recombinant, expressed in mouse NSO cells

Catalog Number **A5226**

Storage Temperature -20°C

Synonym: Ang1

Product Description

Recombinant, human angiopoietin 1 (Ang1) is produced from the human angiopoietin 1 DNA sequence, Met¹-Phe⁴⁹⁸ fused to a 6× histidine tag at the C-terminus, expressed in the mouse NSO myeloma cell line. The recombinant protein starts at Ser²⁰. The calculated molecular mass is 56 kDa, but due to glycosylation, it has a molecular mass of ~70 kDa by SDS-PAGE under reducing conditions. Human Ang1 has ~97% amino acid homology to mouse Ang1 and ~60% homology to human angiopoietin 2 (Ang2).¹

Ang1 is secreted by endothelial cells and is a specific ligand of the Tie-2 receptor, which is expressed on endothelial cells and early hematopoietic cells. Ang1 is closely related to Ang2. Ang1, Ang2, and their receptor Tie-2 play critical roles in embryonic vasculogenesis and angiogenesis, adult angiogenic sprouting, and endothelial cell proliferation. Ang1 activates Tie-2 signaling on endothelial cells to promote chemotaxis, cell survival, cell sprouting, and vessel growth and stabilization.^{1,2}

Ang1 and Ang2 have an N-terminal coiled-coil domain and a C-terminal fibrinogen-like domain.^{3,4} The coiled-coil domain mediates ligand homo-oligomerization and the fibrinogen-like domain mediates ligand activity.⁴

Recombinant, human angiopoietin 1 is lyophilized from a 0.2 μm filtered solution of 50 mM Tris, pH 6.5, containing 0.4 M NaCl and 50 μg of bovine serum albumin per 1 μg of Ang1.

The activity of Ang1 is measured by its ability to inhibit serum deprivation-induced apoptosis in human umbilical venous endothelial (HUVE) cells. The ED₅₀ range is 10–40 ng/mL when Ang1 is crosslinked with 5 $\mu\text{g}/\text{mL}$ mouse anti-6× histidine antibody. Optimal dilutions should be determined by each laboratory for each application.

Purity: $\geq 90\%$ (SDS-PAGE visualized by silver stain)

Endotoxin level: <0.2 ng/ μg protein
[LAL (Limulus amoebocyte lysate) method]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Stock solutions of ≥ 10 $\mu\text{g}/\text{mL}$ can be prepared in the vial by adding sterile phosphate buffered saline containing at least 0.1% human or bovine serum albumin.

Storage/Stability

Recombinant, human angiopoietin 1 should be stored as supplied at -20°C and remains active for at least six months.

Reconstituted sterile stock solutions can be stored at $2-8^{\circ}\text{C}$ for one month or at -20°C for three months. Avoid repeated freeze-thaw cycles.

References

1. Jones, N. et al., Tie receptors: new modulators of angiogenic and lymphangiogenic responses. *Nat. Rev. Mol. Cell Biol.*, **2**, 257-267 (2001).
2. Witzenbichler, B. et al., Chemotactic properties of angiopoietin-1 and -2, ligands for the endothelial-specific receptor tyrosine kinase Tie2. *J. Biol. Chem.*, **273**, 18514-18521 (1998).
3. Maisonpierre, P.C. et al., Angiopoietin-2, a natural antagonist for Tie2 that disrupts *in vivo* angiogenesis. *Science*, **277**, 55-60 (1997).
4. Procopio, W.N. et al., Angiopoietin-1 and -2 coiled coil domains mediate distinct homo-oligomerization patterns, but fibrinogen-like domains mediate ligand activity. *J. Biol. Chem.*, **274**, 30196-30201 (1999).

ADM,BR,DMG,MAM 05/11-1

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.