

BACKGROUND

Angiopoietins belong to a distinct family of angiogenic proteins including Ang1-4, which have been shown to play fundamental physiological roles in maintenance of vascular integrity. Ang1 was identified as the major physiological ligand for Tie2 receptor tyrosine kinase, responsible for recruiting and sustaining periendothelial support cells. Ang2 was found to disrupt blood vessel formation in the developing embryo by antagonizing the effects of Ang1 and Tie2, and it was thus concluded that Ang2 represents a natural Ang1/Tie2 inhibitor. Extrapolation of these developmental findings to postnatal neovascularization has led to the dual inferences that Ang1 may induce maturation and stabilization of developing neovasculature, whereas Ang2 may cause destabilization required for additional sprout formation.¹ Ang1 binds to Tie2 and induces its activation via tyrosine phosphorylation. Through the phosphatidylinositol 3-kinase (PI3K)-Akt pathway and others, Ang1 exerts pro-survival, anti-permeability, and anti-inflammatory effects on endothelial cells (ECs). However, it was demonstrated that the role of Ang-1 in angiogenesis and vascular permeability is secondary to increasing periendothelial support and vessel stabilization. Thus, Ang-1 could potentially serve as an anti-neoplastic or anti-permeability agent for patients with metastatic colorectal cancer.² Whereas, other studies suggested Ang-1 is a tumor angiogenesis promoter.³ Furthermore, it was demonstrated that Ang2 possesses both partial agonistic as well as antagonistic action on Tie2 in ECs—alone, Ang2 is a weak but necessary activator of Tie2, whereas in the presence of Ang1, Ang2 inhibits Tie2 signaling. Moreover, ECs secrete Ang2, which in turn maintains a basal level of Tie2 phosphorylation.⁴

References:

1. Maisonpierre, P.C. et al: Science 277:55-60, 1997
2. Stoltzing, O. et al: Cancer Res. 63: 3370-7, 2003
3. Machein, M.R. et al: Am. J. Pathol. 165:1557-70, 2004
4. Yuan, H.T. et al: Mol. Cell. Biol. 29:2011-22, 2009

TECHNICAL INFORMATION

Source: Anti-angiopoietin-1 is a rabbit polyclonal antibody raised against a synthetic peptide corresponding to the C-terminal of human angiopoietin-1, identical to the related mouse sequence.

Specificity and Sensitivity: Anti-angiopoietin-1 detects specifically angiopoietin-1. No cross-reactivity with other members of the family.

Storage Buffer: 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 ug/ml BSA, 50% glycerol.

Storage:

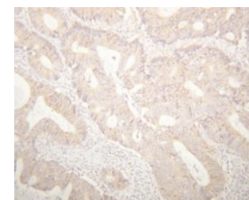
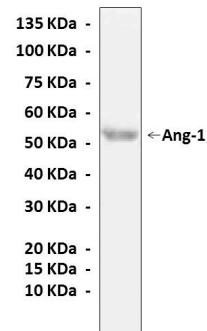
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

| Application: | *Dilution: |
|--------------|----------------|
| WB | 1:500 – 1:1000 |
| IP | n/d |
| IHC | 1:50 – 1:200 |
| ICC | n/d |
| FACS | n/d |

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA



Top: Detection of Angiopoietin-1 from rat cardiac tissue lysate in Western blot assay, using Anti-ANG-1.
Bottom: Immunohistochemical staining of paraffin-embedded human intestinal cancer using Anti-ANG-1 Antibody.

