

## Product Information

### Anti-Activin Receptor-Like Kinase 1

produced in goat, affinity isolated antibody

Catalog Number **A0226**

#### Product Description

Anti-Activin Receptor-Like Kinase 1 (ALK-1) is developed in goat using a purified recombinant human ALK-1 extracellular domain expressed in mouse NSO cells as immunogen. Affinity isolated antigen specific antibody is obtained from goat anti-ALK-1 antiserum by immuno-specific purification which removes essentially all goat serum proteins, including immunoglobulins, which do not specifically bind to the peptide.

Anti-Activin Receptor-Like Kinase 1 recognizes recombinant human activin receptor-like kinase 1 by immunoblotting and ELISA. Based on immunoblotting and ELISA, this antibody shows ~10 % cross reactivity with recombinant mouse ALK-1. There is no cross reactivity with recombinant human activin receptor IA and recombinant human activin receptor IB.

The TGF- $\beta$  superfamily of ligands exerts its biological activity by binding to heteromeric receptor complexes of two types (I and II) of the serine/threonine kinases.<sup>1,2</sup> The type II receptors are constitutively active kinases, which phosphorylate type I receptors after ligand binding. In turn, the activated type I kinases phosphorylate downstream signaling molecules including the various Smads. Seven type I receptors, also termed activin receptor-like kinase (ALK), have been isolated from mammals. The physiological ligand for ALK-1 is currently unknown. It is suggested that TGF- $\beta$ 1 and TGF- $\beta$ 3 can activate chimeric ALK-1.<sup>3</sup>

ALK-1, like the other type I receptors, contains a cysteine-rich domain with conserved cysteine spacing in the extracellular region and a glycine-and serine-rich domain preceding the kinase domain. The reduced human ALK-1 monomer has a calculated molecular mass of approximately 37.3 kDa. Due to glycosylation, the recombinant human protein migrates as a 50-55 kDa protein in SDS-PAGE under reducing conditions.

Human and mouse ALK-1 share approximately 71% amino acid sequence identity in their extracellular domains.

ALK-1 is highly expressed in endothelial cells and other vascular tissues. Mutations in ALK-1 are associated with hereditary hemorrhagic telangiectasia (HHT), suggesting an important role for ALK-1 in the control of blood vessel development and repair.<sup>4,5</sup>

#### Reagent

Supplied as 100  $\mu$ g of antiserum lyophilized from a 0.2  $\mu$ m filtered solution of phosphate buffered saline with 5% trehalose.

#### Preparation Instructions

To one vial of lyophilized powder, add 1 ml of sterile phosphate buffered saline to produce a 0.1 mg/ml stock solution of antibody.

#### Storage/Stability

Prior to reconstitution, store at -20 °C. Reconstituted product may be stored at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots. Avoid repeated freezing and thawing. Do not store in "frostfree" freezer.

#### Product Profile

Immunoblotting, a working concentration of 0.1-0.2  $\mu$ g/mL is recommended. The detection limit for recombinant human ALK-1 is approximately 2 ng/lane under non-reducing and reducing conditions.

ELISA: a working concentration of 0.5-1.0  $\mu$ g/mL is recommended. The detection limit for recombinant human ALK-1 is ~0.13 ng/well.

**Note:** In order to obtain the best results in various techniques and preparations, we recommend determining optimal working dilutions by titration.

## References

1. ten Dijke, P., et al., *Oncogene*, **8**, 2879-2887 (1993).
2. ten Dijke, P., et al., *Science*, **264**, 101-104 (1994).
3. Lux, A., et al., *J. Biol. Chem.*, **274**, 9984-9992 (1999).
4. Azuman, J., *J. Med. Invest.*, **47**, 81-90 (2000).
5. Berg, J.N., et al., *Am. J. Hum. Genet.*, 61, 60-67 (1997).

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