

## Product Information

### Activin Receptor-Like Kinase 1 (ALK-1)/Fc Chimera

Mouse, Recombinant  
Expressed in NSO cells

Product Number **A 0601**

#### Product Description

Recombinant Mouse Activin Receptor-Like Kinase 1 (ALK-1)/Fc Chimera is produced from the DNA sequence encoding the signal peptide from human CD33 joined with amino acids 23-119 of the extracellular domain of mouse activin receptor-like kinase 1 fused to the Fc region of human IgG1 by a polypeptide linker.<sup>1</sup> It is expressed in the mouse myeloma NSO cell line. The reduced ALK-1 monomer has a calculated molecular mass of approximately 37.7 kDa. Due to glycosylation, the recombinant 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.

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>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. 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

Recombinant Mouse Activin Receptor-Like Kinase 1 (ALK-1)/Fc Chimera is supplied as approximately 100  $\mu$ g of protein lyophilized from a 0.2  $\mu$ m filtered solution in phosphate buffered saline (PBS).

#### Preparation Instructions

Reconstitute the contents of the vial with sterile phosphate buffered saline containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 100  $\mu$ g/mL.

#### Storage/Stability

Store at  $-20^{\circ}\text{C}$ . Upon reconstitution, store at  $2^{\circ}\text{C}$  to  $8^{\circ}\text{C}$  for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a "frost-free" freezer.

#### Product Profile

Recombinant Mouse Activin Receptor-Like Kinase 1 (ALK-1)/Fc Chimera can be used as a calibrator for anti-ALK-1 antibodies. The biological activity for this product has not been measured because the ligand for ALK-1 is not known.

Purity: > 95% as determined by SDS-PAGE, visualized by silver stain.

Endotoxin level is < 0.1 ng/ $\mu$ g protein as determined by the LAL (Limulus amoebocyte lysate) method.

## References

1. Wu, X., et al., Biochem. Biophys. Res. Commun., **216**, 78-83 (1995).
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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