

## ALK-1 Protein, Human, Recombinant (hFc)

### General Information

Synonyms:	SKR3;ORW2;ACVRL1;TSR-I;ALK1;activin A receptor type II-like 1;HHT;ALK-1;ACVRLK1;HHT2
Protein Construction:	A DNA sequence encoding the N-terminal segment (Met 1-Gln 118) of the extracellular domain of human ALK1 (NP_000011.2) pro-protein was fused with the Fc region of human IgG1 at the C-terminus. Predicted N terminal: Asp 22
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P37023
Molecular Weight:	37.4 kDa (predicted); 45-50 kDa (reducing condition, due to glycosylation)

### QC Testing

Biological Activity:	1. Measured by its ability to bind Human ENG-Fc in functional Elisa. 2. Measured by its ability to inhibit BMP9 induced alkaline phosphatase production by MC3T3E1 mouse chondrogenic cells. The ED50 for this effect is typically 1-6 ng/mL in the presence of 2 ng/mL of recombinant human BMP9.
Purity:	> 97 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Activin A receptor, type II-like 1 (ACVRL1), also known as ALK-1 (activin receptor-like kinase 1), is an endothelial-specific type I receptor of the TGF-beta (transforming growth factor beta) receptor family of ligands. On ligand

binding, a heteromeric receptor complex forms consisting of two type II and two type I transmembrane serine/threonine kinases. ACVRL1 protein is expressed in certain blood vessels of kidney, spleen, heart and intestine, serving as an important role during vascular development. Mutations in ACVRL1 gene are associated with hemorrhagic telangiectasia type 2, also known as Rendu-Osler-Weber syndrome 2 and vascular disease.

### Reference

French Rendu-Osler network, et al. (2004) Molecular screening of ALK1/ACVRL1 and ENG genes in hereditary hemorrhagic telangiectasia in France. *Hum Mutat.* 23(4): 289-299.

Simon M, et al. (2006) Association of a polymorphism of the ACVRL1 gene with sporadic arteriovenous malformations of the central nervous system. *J Neurosurg.* 104(6): 945-9.

Argyriou L, et al. (2006) Novel mutations in the ENG and ACVRL1 genes causing hereditary hemorrhagic telangiectasia. *Int J Mol Med.* 17(4):655-9.

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