

## ALK-4/ACVR1B Protein, Human, Recombinant (hFc)

### General Information

Synonyms:	ACVRLK4;ACTRIB;ALK4;activin A receptor, type IB;SKR2
Protein Construction:	Ser24-Glu126
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P36896-1
Molecular Weight:	37.36 kDa (Predicted); 45-55 kDa (Reducing conditions due to glycosylation)

### QC Testing

Biological Activity:	Loaded Human ACVR1B, hFc Tag on ProA-Biosensor can bind Human TDGF1, His Tag with an affinity constant of 0.13 $\mu\text{M}$ as determined in BLI assay (Gator <sup>®</sup> Prime). (QC Test) Human ACVR1B, hFc Tag captured on CM5 Chip via Protein A can bind Human TDGF1, His Tag with an affinity constant of 0.16 $\mu\text{M}$ as determined in SPR assay (Biacore T200). Human ACVR1B, hFc Tag captured on CM5 Chip via Protein A can bind Human Activin A, No Tag with an affinity constant of 11.57 nM as determined in SPR assay (Biacore T200).
Purity:	> 95% as determined by Bis-Tris PAGE; > 95% as determined by HPLC
Endotoxin:	< 1.0 EU/ $\mu\text{g}$ of the protein as determined by the LAL method.
Formulation:	Lyophilized from 0.22 $\mu\text{m}$ filtered solution in PBS (pH 7.4). Normally 8% trehalose is added as protectant before lyophilization.

### Preparation and Storage

**Reconstitution:**  
Reconstitute the lyophilized protein in distilled water. The product concentration should not be less than 100  $\mu\text{g}/\text{ml}$ . Before opening, centrifuge the tube to collect powder at the bottom. After adding the reconstitution buffer, avoid vortexing or pipetting for mixing.

#### Stability & Storage:

It is recommended to store recombinant proteins at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at  $-80^{\circ}\text{C}$ . For reconstituted protein solutions, the solution can be stored at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  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 I (ACVR1) encodes for a bone morphogenetic protein type I receptor of the TGF $\beta$  receptor superfamily. It is involved in a wide variety of biological processes, including bone, heart, cartilage, nervous, and reproductive system development and regulation. Moreover, ACVR1 has been extensively studied for its causal role in fibrodysplasia ossificans progressiva (FOP), a rare genetic disorder characterised by progressive heterotopic ossification. ACVR1 is linked to different pathologies, including cardiac malformations and alterations in the reproductive system.

### Reference

Chen Y, et al. (2005) Developmental analysis of activin-like kinase receptor-4 (ALK4) expression in *Xenopus laevis*. 232(2): 393-8.J.

Massagu. (1998) TGF- SIGNAL TRANSDUCTION. Annual Review of Biochemistry. 67: 753-91.

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