

# Human ALK4 / ACVR1B Protein (His Tag)

Catalog Number: 10583-H08H



Sino Biological  
Biological Solution Specialist

## General Information

### Gene Name Synonym:

ACTR1B; ACVRLK4; ALK4; SKR2

### Protein Construction:

A DNA sequence encoding the human ACVR1B (NP\_004293.1) extracellular domain (Met 1-Glu 126) was expressed, with a C-terminal polyhistidine tag.

**Source:** Human

**Expression Host:** HEK293 Cells

## QC Testing

**Purity:** ≥ 92 % as determined by SDS-PAGE. ≥ 90 % as determined by SEC-HPLC.

### Bio Activity:

**Measured by its binding ability in a functional ELISA**  
Immobilized human TGFβ1 at 2 µg/ml (100 µl/well) can bind human ALK-4 with a linear range of 0.032-4 µg/ml.

### Endotoxin:

< 1.0 EU per µg of the protein as determined by the LAL method

### Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

**Predicted N terminal:** Ser 24

### Molecular Mass:

The recombinant human ACVR1B consists of 114 amino acids and has a predicted molecular mass of 13 kDa. In SDS-PAGE under reducing conditions, the apparent molecular mass of rh ACVR1B is approximately 18-20 kDa due to glycosylation.

### Formulation:

Lyophilized from sterile PBS, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

## Usage Guide

### Storage:

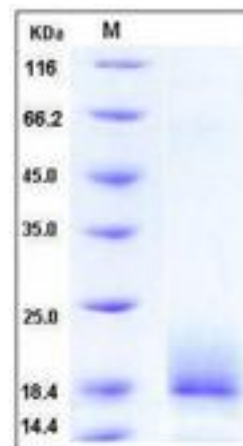
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

**Avoid repeated freeze-thaw cycles.**

### Reconstitution:

Detailed reconstitution instructions are sent along with the products.

## SDS-PAGE:



## Protein Description

ALK-4 (Activin Receptor-Like Kinase 4) or ACVR1B (Activin A Receptor, type 1B), belongs to the protein kinase superfamily, TKL Ser/Thr protein kinase family, and TGFβ receptor subfamily. ALK-4/ACVR1B acts as a transducer of activin or activin like ligands signals. Activin binds to either ACVR2A or ACVR2B and then forms a complex with ACVR1B. The known type II activin receptors include ActRII and ActRIIB, while the main type I activin receptor in mammalian cells is ALK-4 (ActRII). In the presence of activin, type II and type I receptors form complexes whereby the type II receptors activate ALK-4 through phosphorylation. The activated ALK-4, in turn, transduces signals downstream by phosphorylation of its effectors, such as Smads, to regulate gene expression and affect cellular phenotype. ALK-4/ACVR1B is an important regulator of vertebrate development, with roles in mesoderm induction, primitive streak formation, gastrulation, dorsoanterior patterning, and left-right axis determination.

## References

Chen Y, et al. (2005) Developmental analysis of activin-like kinase receptor-4 (ALK4) expression in *Xenopus laevis*. 232(2): 393-8.  
J. Massagué. (1998) TGF-β SIGNAL TRANSDUCTION. Annual Review of Biochemistry. 67: 753-91.

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