

# Recombinant Rat ALK-4/ACVR1B Protein

Catalog No.: RP01861 **Recombinant**

## Sequence Information

Species	Gene ID	Swiss Prot
Rat	29381	P80202

### Tags

C-hFc

### Synonyms

Activin receptor type-1B; 2.7.11.30;  
Activin receptor type IB; ACTR-IB; Activin receptor-like kinase 4; ALK-4;  
Serine/threonine-protein kinase receptor R2; SKR2□Acvr1b; Acvr1k4; Alk4

## Product Information

Source	Purification
HEK293 cells	

Calculated MW	Observed MW
41.35 kDa	45-50 kDa

### Endotoxin

< 0.1 EU/μg of the protein by LAL method.

### Formulation

Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.4.

### Reconstitution

Centrifuge the vial before opening. Reconstitute to a concentration of 0.1-0.5 mg/mL in sterile distilled water. Avoid vortex or vigorously pipetting the protein. For long term storage, it is recommended to add a carrier protein or stabilizer (e.g. 0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose), and aliquot the reconstituted protein solution to minimize free-thaw cycles.

## Contact

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## Background

Activin RIB, also known as activin receptor type-1B (ACVR1B) or ALK-4, is a type I transmembrane serine/threonine kinase receptor that is part of the TGF-β receptor superfamily. Activin binds to a type II activin receptor (ACVR2or ACVR2B) and then recruits ACVR1B. ALK4 is an important regulator of vertebrate development, with roles in mesoderm induction, primitive streak formation, gastrulation, dorsoanterior patterning, and left-right axis determination. The sequence of amino acids in ALK4 (ACVR1B) proteins from different species is very stable, which leads to the conclusion that in the process of evolution, ALK4 has been only slightly altered, and that both in humans and in animals, its function is similar. ALK4 (ACVR1B) forms an activin receptor complex with activin type-II receptor to transduce activin signal from the cell surface to the cytoplasm, thus regulating physiological and pathological processes including embryogenesis, tissue homeostasis, wound healing, extracellular matrix production, immunosuppression, and carcinogenesis. Receptor heterodimerization activates the type II receptor kinase to phosphorylate the type I receptor, which recruits and phosphorylates regulated Smads2 and 3. Phosphorylated regulated Smads are released and form a heteromeric complex with the Co-Smad, Smad4. The regulated Smad and Co-Smad complex then translocates to the nucleus where it regulates the expression of many genes. In mammals, Acvr1b is expressed by various types of epithelial cells, including interfollicular epidermis, and the outer root sheath (ORS) and the inner root sheath (IRS) of the hair follicles. Activin signaling through Acvr1b acts on skin epithelial cells in a paracrine manner.

## Basic Information

### Description

Recombinant Rat ALK-4/ACVR1B Protein is produced by HEK293 cells expression system. The target protein is expressed with sequence (Met1-Glu126 ) of Rat ALK-4/ACVR1B (Accession #NP\_954700.1) fused with H7His tag at the C-terminus.

### Bio-Activity

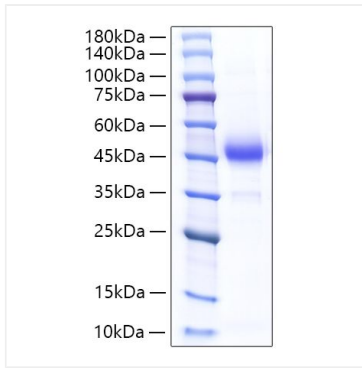
Measured by its binding ability in a functional ELISA. Immobilized human Cripto-1/TGDF1 protein(Catalog: RP00202) at 2μg/mL (100 μL/well) can bind rat ALK-4/ACVR1B with a linear range of 4.9-152.7 ng/mL.

### Storage

Store at -20°C. Store the lyophilized protein at -20°C to -80 °C up to 1 year from the date of receipt. After reconstitution, the protein solution is stable at -20°C for 3 months, at 2-8°C for up to 1 week. Avoid repeated freeze/thaw cycles.

## Validation Data

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Recombinant Rat ALK-4/ACVR1B Protein was determined by SDS-PAGE with Coomassie Blue, showing a band at 40-50 kDa.