PRODUCT INFORMATION

ALK4 Extracellular Domain (human, recombinant)

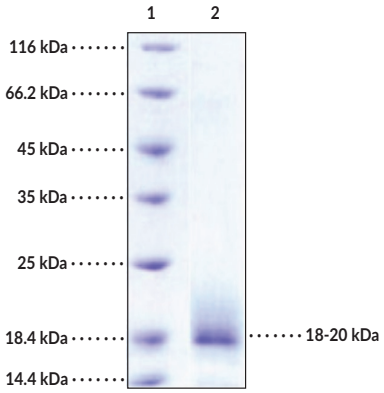
Item No. 31846

Overview and Properties

Synonyms:	Activin Receptor-like Kinase 4, Activin Receptor Type-1B, ACTR1B, ACVR1B, ACVRLK4, Serine/threonine-protein Kinase Receptor R2, SKR2
Source:	Active recombinant human C-terminal His-tagged ALK4 expressed in HEK293 cells
Amino Acids:	24-126
Uniprot No.:	P36896
Molecular Weight:	13 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥92% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4, with 5% trehalose and 5% mannitol
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Protein Concentration:	***batch specific*** mg/ml
Bioactivity:	See figures for details

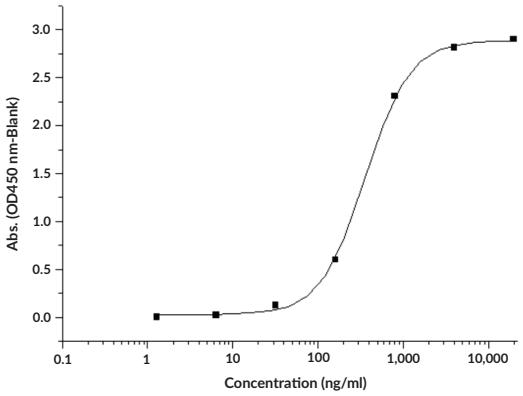
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: ALK4 Extracellular Domain

SDS-PAGE Analysis of ALK4 Extracellular Domain. This protein has a calculated molecular weight of 13 kDa. It has an apparent molecular weight of 18-20 kDa by SDS-PAGE under reducing conditions due to glycosylation.



ALK4 Extracellular Domain Binding in Functional ELISA. Immobilized human TDGF1 at 2 µg/ml (100 µl/well) can bind human ALK4 Extracellular Domain with a linear range of 0.032-4 µg/ml.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

PRODUCT INFORMATION

Description

Activin receptor-like kinase 4 (ALK4) is a type I transmembrane glycoprotein, serine/threonine kinase, and member of the TGF-β superfamily that is encoded by *ACVR1B* in humans.[1,2] It is composed of an extracellular ligand-binding domain, a single transmembrane domain, an intracellular serine/threonine kinase domain, and a cytoplasmic serine/threonine-rich region. ALK4 is ubiquitously expressed and forms heterodimers with activin receptor type IIA (ACTRIIA) or ACTRIIB at the cell surface. Upon ligand activation by activin A, activin B, activin AB, or Nodal, ALK4 is phosphorylated by its heterodimer partner and induces intracellular signaling and phosphorylation of SMAD2 and SMAD3 to regulate gene expression. ALK4-mediated signaling has roles in glucose-stimulated insulin secretion, neuronal differentiation of pluripotent stem cells, and the development of pancreatic and pituitary cancers.[1-3] Cayman's ALK4 Extracellular Domain (human, recombinant) protein can be used for binding assays. This protein consists of 114 amino acids, has a calculated molecular weight of 13 kDa, and a predicted N-terminus of Ser24 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 18-20 kDa due to glycosylation.

References

1. Watanabe, R. Activin receptor-like kinase and the insulin gene. *Vitamins and hormones*. Litwack, G., editor, 1st edition, *Academic Press* (2011).
2. Tsuchida, K., Nakatani, M., Uezumi, A., *et al.* Signal transduction pathway through activin receptors as a therapeutic target of musculoskeletal diseases and cancer. *Endocr. J.* **55(1)**, 11-21 (2008).
3. Fjodorova, M., Noakes, Z., and Li, M. A role for TGFβ signalling in medium spiny neuron differentiation of human pluripotent stem cells. *Neuronal Signal.* **4(2)**, NS20200004 (2020).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM