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ACVR1B Antibody

Catalog # ASC10762

Product Information

Application	WB, E
Primary Accession	Q04771
Other Accession	NP_001096, 4501895
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	57153
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	ACVR1B antibody can be used for detection of ACVR1B by Western blot at 1 g/mL.

Additional Information

Gene ID	90
Other Names	Activin receptor type-1, 2.7.11.30, Activin receptor type I, ACTR-I, Activin receptor-like kinase 2, ALK-2, Serine/threonine-protein kinase receptor R1, SKR1, TGF-B superfamily receptor type I, TSR-I, ACVR1, ACVRLK2
Target/Specificity	ACVR1; At least three isoforms of ACVR1B are known to exist. This antibody is predicted to have no cross-reactivity to ACVR1 or ACVR1C.
Reconstitution & Storage	ACVR1B antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	ACVR1B Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ACVR1
Synonyms	ACVRLK2
Function	Bone morphogenetic protein (BMP) type I receptor that is involved in a wide variety of biological processes, including bone, heart, cartilage, nervous, and reproductive system development and regulation (PubMed:20628059, PubMed:22977237). As a type I receptor, forms heterotetrameric receptor complexes with the type II receptors AMHR2, ACVR2A or ACVR2B (PubMed:17911401). Upon binding of ligands such as BMP7 or GDF2/BMP9 to

	the heteromeric complexes, type II receptors transphosphorylate ACVR1 intracellular domain (PubMed:25354296). In turn, ACVR1 kinase domain is activated and subsequently phosphorylates SMAD1/5/8 proteins that transduce the signal (PubMed:9748228). In addition to its role in mediating BMP pathway-specific signaling, suppresses TGFbeta/activin pathway signaling by interfering with the binding of activin to its type II receptor (PubMed:17911401). Besides canonical SMAD signaling, can activate non-canonical pathways such as p38 mitogen-activated protein kinases/MAPKs (By similarity). May promote the expression of HAMP, potentially via its interaction with BMP6 (By similarity).
Cellular Location	Membrane; Single-pass type I membrane protein.
Tissue Location	Expressed in normal parenchymal cells, endothelial cells, fibroblasts and tumor-derived epithelial cells

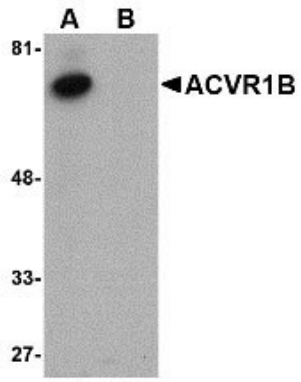
Background

ACVR1B Antibody: Activins are dimeric growth and differentiation factors which belong to the transforming growth factor-beta (TGF-beta) superfamily of structurally related signaling proteins. Activins signal through a heteromeric complex of receptor serine kinases which include at least two type I and two type II receptors. ACVR1B, also known as activin receptor-like kinase 4 (ALK4), is a type I receptor for activin and plays major roles in cell differentiation, growth arrest and apoptosis. Like another type I activin receptor ACVR1C, ACVR1B can mediate signaling by ligands such as Nodal, Xnr1, GDF-1/3, activin B and activin AB. In Xenopus embryos, expression of a dominant-negative form of ACVR1B blocked all mesoderm-inducing ligands, while expression of a dominant negative ACVR1C only blocked Nodal and Xnr1 signaling, suggesting that the ACVR1B and ACVR1C possess distinct functions.

References

Tsuchida K, Sawchenko PE, Nishikawa S, et al. Molecular cloning of a novel type I receptor serine/threonine kinase for the TGF beta superfamily from rat brain. Mol. Cell. Neurosci.1996; 7:467-78.
Reissmann E, Jornvall H, Blokzijl A, et al. The orphan receptor ALK7 and the activin receptor ALK4 mediate signaling by nodal proteins during vertebrate development. Genes Dev.2001; 15:2010-22.
Tsuchida K, Nakatani M, Yamakawa N, et al. Activin isoforms signal through type I receptor serine/threonine kinase ALK7. Mol. Cell Endocrinol.2004; 220:59-65.

Images



Western blot analysis of ACVR1B in human kidney tissue lysate with ACVR1B antibody at 1 µg/mL in (A) the absence and (B) the presence of blocking peptide.