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ACVR1C Antibody

Catalog # ASC10763

Product Information

Application	WB, E
Primary Accession	Q04771
Other Accession	NP_001096, 4501895
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	57153
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	ACVR1C antibody can be used for detection of ACVR1C by Western blot at 1 and 2 □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; This antibody is predicted to have no cross-reactivity to ACVR1 or ACVR1B.
Reconstitution & Storage	ACVR1C 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	ACVR1C 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

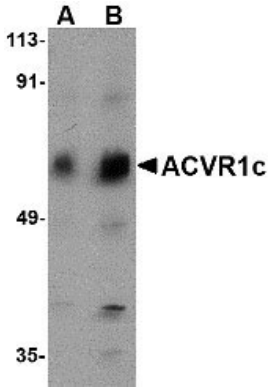
Background

ACVR1C 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. ACVR1C, also known as ALK7, is a type I activin receptor and plays a role in cell differentiation, growth arrest and apoptosis. ACVR1C can mediate signaling by ligans such as Nodal, GDF-1/3, activin B and activin AB, all of which can also signal through the ubiquitous activin type I receptor ACVR1B (also known as ALK4). ACVR1C is a novel marker specifically expressed during the late phase of adipocyte differentiation. ACVR1C is dispensable for mouse embryogenesis, which suggests alternative functions for this receptor in postnatal development and tissue homeostasis. ACVR1C plays an important role in regulating the functional plasticity of pancreatic islets, negatively affecting beta-cell function by mediating the effects of activin B on Ca2+ signaling.

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.
Kogame M, Matsuo S, Nakatani M, et al. ALK7 is a novel marker for adipocyte differentiation. J. Med. Invest.2006; 53:238-45.

Images



Western blot analysis of ACVR1C in human placenta tissue lysate with ACVR1C antibody at (A) 1 and (B) 2 µg/mL.