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ACVR2B Recombinant Monoclonal Antibody

Product Code	CSB-RA260702A0HU
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	Q13705
Immunogen	A synthesized peptide derived from human Activin Receptor Type IIB
Species Reactivity	Human
Tested Applications	ELISA, IHC; Recommended dilution: IHC:1:50-1:200
Relevance	Transmembrane serine/threonine kinase activin type-2 receptor forming an activin receptor complex with activin type-1 serine/threonine kinase receptors (ACVR1, ACVR1B or ACVR1c). Transduces the activin signal from the cell surface to the cytoplasm and is thus regulating many physiological and pathological processes including neuronal differentiation and neuronal survival, hair follicle development and cycling, FSH production by the pituitary gland, wound healing, extracellular matrix production, immunosuppression and carcinogenesis. Activin is also thought to have a paracrine or autocrine role in follicular development in the ovary. Within the receptor complex, the type-2 receptors act as a primary activin receptors (binds activin-A/INHBA, activin-B/INHBB as well as inhibin-A/INHA-INHBA). The type-1 receptors like ACVR1B act as downstream transducers of activin signals. Activin binds to type-2 receptor at the plasma membrane and activates its serine-threonine kinase. The activated receptor type-2 then phosphorylates and activates the type-1 receptor. Once activated, the type-1 receptor binds and phosphorylates the SMAD proteins SMAD2 and SMAD3, on serine residues of the C-terminal tail. Soon after their association with the activin receptor and subsequent phosphorylation, SMAD2 and SMAD3 are released into the cytoplasm where they interact with the common partner SMAD4. This SMAD complex translocates into the nucleus where it mediates activin-induced transcription. Inhibitory SMAD7, which is recruited to ACVR1B through FKBP1A, can prevent the association of SMAD2 and SMAD3 with the activin receptor complex, thereby blocking the activin signal. Activin signal transduction is also antagonized by the binding to the receptor of inhibin-B via the IGSF1 inhibin coreceptor.
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Product Type	Recombinant Antibody
Immunogen Species	Homo sapiens (Human)

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Research Area	Signal transduction; Stem cells
Gene Names	ACVR2B
Clone No.	7B10

Image



IHC image of CSB-RA260702A0HU diluted at 1:100 and staining in paraffin-embedded human breast cancer performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a Goat anti-rabbit IgG polymer labeled by HRP and visualized using 0.05% DAB.



IHC image of CSB-RA260702A0HU diluted at 1:100 and staining in paraffin-embedded human placenta tissue performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a Goat anti-rabbit IgG polymer labeled by HRP and visualized using 0.05% DAB.

Description

The production of the ACVR2B recombinant monoclonal antibody involves a complex procedure that requires several stages. Initially, the ACVR2B monoclonal antibody is collected, and its gene sequence is determined. Following that, a vector carrying the ACVR2B monoclonal antibody gene is designed and transfected into a host cell line for culturing. During the ACVR2B monoclonal antibody synthesis, a synthesized peptide based on human ACVR2B is employed as an immunogen. The ACVR2B recombinant monoclonal antibody is then separated and purified through affinity chromatography from the cell culture supernatant. Finally, the specificity of the ACVR2B recombinant monoclonal antibody is confirmed using ELISA and IHC techniques. It only detects human ACVR2B protein.

ACVR2B is well-known for its role in the regulation of muscle growth and development. By binding to myostatin, ACVR2B inhibits the activity of skeletal muscle satellite cells, which are responsible for muscle repair and growth, leading to a decrease in muscle mass. ACVR2B is also involved in bone development and homeostasis, as it can bind to BMPs and regulate osteoblast and osteoclast activity. It has been implicated in various other physiological processes, including neural development, immune system regulation, and tumorigenesis.