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BMPR1A Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2004a

Product Information

Application	WB, IHC-P, E
Primary Accession	P36894
Other Accession	Q78EA7, P36895, NP_004320
Reactivity	Human, Rat, Mouse
Predicted	Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	60198
Antigen Region	30-60

Additional Information

Gene ID	657
Other Names	Bone morphogenetic protein receptor type-1A, BMP type-1A receptor, BMPR-1A, Activin receptor-like kinase 3, ALK-3, Serine/threonine-protein kinase receptor R5, SKR5, CD292, BMPR1A, ACVRLK3, ALK3
Target/Specificity	This BMPR1A antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 30-60 amino acids from the N-terminal region of human BMPR1A.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	BMPR1A Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	BMPR1A
Synonyms	ACVRLK3, ALK3

Function	On ligand binding, forms a receptor complex consisting of two type II and two type I transmembrane serine/threonine kinases. Type II receptors phosphorylate and activate type I receptors which autophosphorylate, then bind and activate SMAD transcriptional regulators. Receptor for BMP2, BMP4, GDF5 and GDF6. Positively regulates chondrocyte differentiation through GDF5 interaction. Mediates induction of adipogenesis by GDF6. May promote the expression of HAMP, potentially via its interaction with BMP2 (By similarity).
Cellular Location	Cell membrane; Single-pass type I membrane protein. Cell surface {ECO:0000250|UniProtKB:P36895}
Tissue Location	Highly expressed in skeletal muscle.

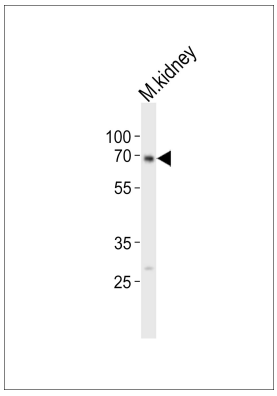
Background

The bone morphogenetic protein (BMP) receptors are a family of transmembrane serine/threonine kinases that include the type I receptors BMPR1A and BMPR1B and the type II receptor BMPR2. These receptors are also closely related to the activin receptors, ACVR1 and ACVR2. The ligands of these receptors are members of the TGF-beta superfamily. TGF-betas and activins transduce their signals through the formation of heteromeric complexes with 2 different types of serine (threonine) kinase receptors: type I receptors of about 50-55 kD and type II receptors of about 70-80 kD. Type II receptors bind ligands in the absence of type I receptors, but they require their respective type I receptors for signaling, whereas type I receptors require their respective type II receptors for ligand binding.

References

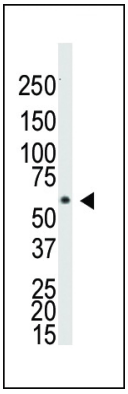
Kan, L. et al. Stem Cells. January; 27(1): 150?56(2009). Waite, K.A., et al., Hum. Mol. Genet. 12(6):679-684 (2003). Zhou, X.P., et al., Am. J. Hum. Genet. 69(4):704-711 (2001). Astrom, A.K., et al., Mamm. Genome 10(3):299-302 (1999). ten Dijke, P., et al., Oncogene 8(10):2879-2887 (1993). Ide, H., et al., Cytogenet. Cell Genet. 81 (3-4), 285-286 (1998).

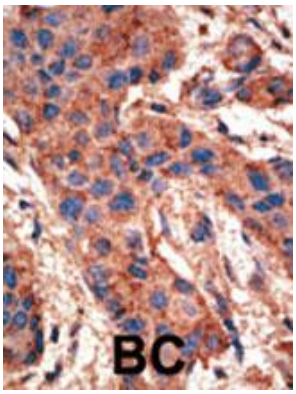
Images



Western blot analysis of lysate from mouse kidney tissue, using BMPR1A Antibody (E45)(Cat. #AP2004a). AP2004a was diluted at 1:1000. A goat anti-rabbit IgG H&L(HRP) at 1:10000 dilution was used as the secondary antibody. Lysate at 20ug.

Western blot analysis of anti-BMPR1A Pab (Cat. #ap2004a) in Saos-2 cell lysate. BMPR1A (arrow) was detected using purified Pab. Secondary HRP-anti-rabbit was used for signal visualization with chemiluminescence.





Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Citations

- Targeted Knockdown of Bone Morphogenetic Protein Signaling within Neural Progenitors Protects the Brain and Improves Motor Function following Postnatal Hypoxia-Ischemia.
- BMP receptor 1A regulates development of hypothalamic circuits critical for feeding behavior.
- Differential effects of BMP signaling on parvalbumin and somatostatin interneuron differentiation.
- Dysregulation of local stem/progenitor cells as a common cellular mechanism for heterotopic ossification.
- BMP inhibition enhances axonal growth and functional recovery after spinal cord injury.