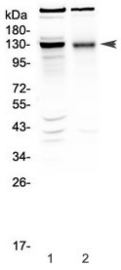
BMPR2 Antibody / Bone Morphogenetic Protein Receptor 2 (RQ4015)

Catalog No.	Formulation	Size
RQ4015	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	Q13873
Applications	Western Blot: 0.5-1ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This BMPR2 antibody is available for research use only.



Western blot testing of 1) rat brain and 2) mouse brain tissue lysate with BMPR2 antibody at 0.5ug/ml. A prominent band is detected at approximately 130 kDa, migrating above the predicted 115 kDa size and consistent with the fully glycosylated mature BMPR2 receptor. A weaker band above 200 kDa is also observed and likely represents dimeric or higher order BMPR2 complexes that are not completely dissociated during electrophoresis.

Description

BMPR2 antibody detects Bone Morphogenetic Protein Receptor Type 2, a receptor in the TGF beta superfamily that regulates fundamental processes in development, cellular differentiation, and vascular homeostasis. The UniProt recommended name is Bone morphogenetic protein receptor type 2. BMPR2 serves as a major conduit for BMP mediated signals that shape cellular identity, tissue organization, and long term physiologic adaptation. Through its ability to coordinate broad transcriptional responses, BMPR2 plays crucial roles in organ morphogenesis, bone and cartilage formation, and the structure and function of the pulmonary and systemic vasculature.

Structurally, BMPR2 contains an extracellular ligand binding domain that recognizes multiple BMP family ligands, a single-pass membrane domain, and an intracellular serine-threonine kinase region that triggers downstream signaling cascades. When activated, BMPR2 participates in complex formation with type I BMP receptors, enabling phosphorylation of SMAD proteins and activation of canonical BMP dependent transcription. BMPR2 also influences non SMAD signaling pathways, allowing cells to integrate diverse environmental inputs into coordinated gene expression programs.

The BMPR2 gene on chromosome 2q33 is expressed in a wide range of tissues, including endothelial cells, vascular smooth muscle, lung parenchyma, bone, cartilage, reproductive organs, adipose tissue, and developing embryonic structures. BMPR2 expression is modulated by developmental stage, mechanical forces, inflammatory cues, and metabolic conditions. In endothelial cells, BMPR2 maintains vessel stability and influences responses to hemodynamic stress. In bone and cartilage, the receptor helps guide lineage specification and regulates extracellular matrix dynamics. In metabolic tissues, BMPR2 participates in adipogenesis and energy homeostasis.

During development, BMP signals transmitted through BMPR2 regulate axis formation, limb development, skeletal patterning, and neural differentiation. Proper BMPR2 function is essential for balanced growth of organ systems and formation of stable tissue architecture. Perturbations in BMP signaling during embryogenesis can lead to structural abnormalities or altered lineage allocation.

In adult physiology, BMPR2 supports vascular health, regeneration, and repair. Its signaling influences smooth muscle tone, endothelial barrier function, and controlled remodeling following injury or inflammation. Reduced BMPR2 activity is strongly associated with hyperproliferative vascular responses. In pulmonary biology especially, BMPR2 is a critical regulator of vessel structure and function.

Pathological variants in BMPR2 are the predominant genetic cause of familial pulmonary arterial hypertension. Loss of receptor function contributes to dysregulated proliferation, apoptosis resistance, and maladaptive remodeling of the pulmonary vasculature. Beyond PAH, altered BMPR2 signaling has been implicated in skeletal abnormalities, metabolic disturbances, and tumors where BMP pathway misregulation contributes to abnormal growth patterns or impaired differentiation.

BMPR2 is widely examined in research on BMP pathway control, pulmonary vascular disease, skeletal development, stem cell differentiation, and regenerative signaling. BMPR2 antibody supports analysis of receptor expression patterns, disease associated changes, and signaling states under experimental perturbation. Because BMP signaling intersects with multiple developmental and homeostatic pathways, BMPR2 remains an important target for mechanistic studies across many biological fields.

BMPR2 antibody is validated for use in relevant research applications to detect Bone Morphogenetic Protein Receptor Type 2 expression in cultured cells and tissues. NSJ Bioreagents provides BMPR2 antibody reagents suitable for vascular biology, developmental research, skeletal science, and BMP pathway investigation.

Application Notes

Optimal dilution of the BMPR2 antibody should be determined by the researcher.

Immunogen

A recombinant human partial protein corresponding to amino acids R455-K512 was used as the immunogen for the BMPR2 antibody.

Storage

After reconstitution, the BMPR2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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