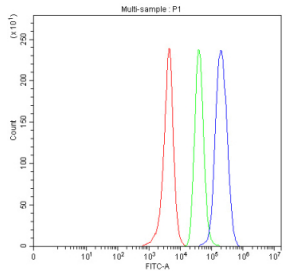
PDGFRB Antibody / Platelet Derived Growth Factor Receptor beta (RQ4436)

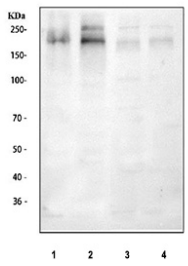
Catalog No.	Formulation	Size
RQ4436	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P09619
Localization	Cell membrane, cytoplasm
Applications	Western Blot : 0.5-1ug/ml Flow Cytometry : 1-3ug/million cells Direct ELISA : 0.1-0.5ug/ml
Limitations	This PDGFRB antibody is available for research use only.



Flow cytometry analysis of fixed human SH-SY5Y cells with PDGFRB antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= PDGFRB antibody.



Western blot testing of 1) human SH-SY5Y, 2) human U-2 OS, 3) rat ovary and 4) mouse lung lysate with PDGFRB antibody at 0.5ug/ml. Instead of the predicted unglycosylated ~124 kDa size, the antibody detects major bands at approximately 190 kDa and 250 kDa, consistent with fully glycosylated PDGFRB and a higher molecular weight receptor species such as a hyperglycosylated or partially dimeric form.

Description

PDGFRB antibody detects Platelet Derived Growth Factor Receptor beta, a transmembrane receptor tyrosine kinase that regulates cell proliferation, migration, and survival across mesenchymal and vascular tissues. The UniProt recommended name is Platelet derived growth factor receptor beta. As one of the two primary PDGF receptors, PDGFRB functions as a central signaling hub controlling developmental processes, wound repair, angiogenesis, and stromal tissue homeostasis.

PDGFRB is a type I transmembrane protein composed of five extracellular immunoglobulin-like domains, a single-pass transmembrane helix, and an intracellular tyrosine kinase domain. Binding of PDGF ligands induces receptor dimerization, autophosphorylation, and activation of downstream signaling cascades including PI3K-AKT, RAS-RAF-MAPK, PLC gamma, and STAT pathways. These signals collectively regulate cytoskeletal dynamics, metabolic activity, transcriptional output, and cell survival. Through these mechanisms, PDGFRB coordinates cellular responses that shape tissue remodeling, fibroblast behavior, and vascular stability.

The PDGFRB gene is located on chromosome 5q32 and is widely expressed in pericytes, vascular smooth muscle cells, fibroblasts, myofibroblasts, and mesenchymal progenitor populations. During embryonic development, PDGFRB is essential for proper vascular formation, mural cell recruitment, and stabilization of nascent blood vessels. Its signaling influences the formation of connective tissues, skeletal elements, and organ specific stromal compartments. In mature tissues, PDGFRB supports vascular integrity by maintaining communication between endothelial cells and surrounding mural cells.

Functionally, PDGFRB plays key roles in wound healing and tissue regeneration. Following injury, activated PDGFRB drives fibroblast proliferation, migration into wound sites, and extracellular matrix deposition. It also promotes recruitment and differentiation of pericytes that contribute to vessel stabilization during new tissue formation. PDGFRB controlled cytoskeletal remodeling enables fibroblasts and stromal cells to exert contractile forces required for wound closure and tissue remodeling.

PDGFRB signaling is closely linked to angiogenesis and vascular remodeling. As pericytes rely heavily on PDGF mediated cues, alterations in PDGFRB expression or activity can disrupt vessel structure, permeability, and maturation. Dysregulated PDGFRB function can lead to abnormal vessel growth, impaired endothelial support, or excessive fibrosis depending on cellular context. These vascular roles have made PDGFRB a major focus in cardiovascular and developmental biology research.

Pathologically, abnormal PDGFRB activity is associated with multiple diseases. Overactivation contributes to fibrotic disorders, including pulmonary, hepatic, and cardiac fibrosis, through excessive fibroblast proliferation and matrix deposition. PDGFRB dysregulation also plays a role in vascular malformations, aneurysm associated remodeling, and pericyte dysfunction. Somatic mutations or gene fusions involving PDGFRB have been identified in certain myeloproliferative neoplasms and leukemias, where constitutive receptor signaling drives uncontrolled proliferation. In oncology, PDGFRB expression in stromal cells helps shape the tumor microenvironment by supporting angiogenesis, matrix remodeling, and stromal cell activation.

PDGFRB is also widely studied in the context of mesenchymal stem cell biology. Its signaling influences lineage commitment, proliferation, and migration of progenitor cells involved in bone, cartilage, and connective tissue formation.

Because of its importance in maintaining stromal architecture, PDGFRB is viewed as a key regulator of tissue mechanics, matrix composition, and long term organ stability.

In neurobiology, PDGFRB is notable for its essential roles in central nervous system vascular development and blood brain barrier integrity. Pericytes expressing PDGFRB interact closely with endothelial cells to control vessel permeability, structural support, and neural tissue protection. Animal model studies demonstrate that reduced PDGFRB signaling leads to impaired pericyte coverage, blood brain barrier leakage, and neurovascular defects.

PDGFRB antibody supports research into receptor expression, mesenchymal signaling, vascular remodeling, fibrotic disease, and tumor microenvironment dynamics. It is validated for use in relevant research applications to detect Platelet Derived Growth Factor Receptor beta expression in cells and tissues. NSJ Bioreagents provides PDGFRB antibody reagents suitable for developmental biology, fibrosis studies, cancer research, and vascular biology.

Application Notes

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

Immunogen

Human PDGFRB recombinant protein (amino acids E911-L992) was used as the immunogen for the PDGFRB antibody.

Storage

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