Mouse PDGF Rα Antibody

Monoclonal Rat IgG_{2B} Clone # 1039504

Catalog Number: MAB3221

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse PDGF Rα in direct ELISAs
Source	Monoclonal Rat IgG_{2B} Clone # 1039504
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived mouse PDGF Rα Leu25-Glu524 Accession # P26618.3
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

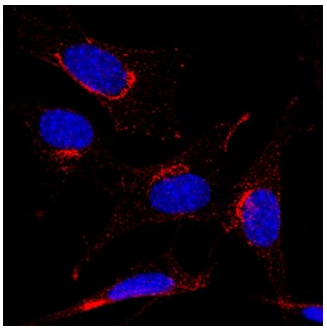
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Immunocytochemistry	8-25 µg/mL	Immersion fixed NIH-3T3 mouse embryonic fibroblast cell line
Immunohistochemistry	5-25 µg/mL	Immersion fixed paraffin-embedded sections of 13 d.p.c. mouse embryos

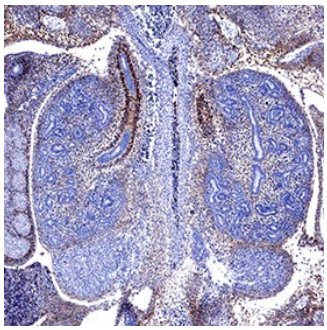
DATA

Immunocytochemistry



PDGF Rα in NIH-3T3 Mouse Cell Line. PDGF Rα was detected in immersion fixed NIH-3T3 mouse embryonic fibroblast cell line using Rat Anti-Mouse PDGF Rα Monoclonal Antibody (Catalog # MAB3221) at 8 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rat IgG Secondary Antibody (red; Catalog # NL013) and counterstained with DAPI (blue). Specific staining was localized to cell surface. Staining was performed using our protocol for Fluorescent ICC Staining of Non-adherent Cells.

Immunohistochemistry



PDGF Rα in 13 d.p.c. mouse embryos. PDGF Rα was detected in immersion fixed paraffin-embedded sections of 13 d.p.c. mouse embryos using Rat Anti-MousePDGF Rα Monoclonal Antibody (Catalog # MAB3221) at 5 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Rat IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC005). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using Antigen Retrieval Reagent-Basic (Catalog # CTS013). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to embryonic kidney. Staining was performed using our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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BACKGROUND

PDGF Rα (platelet-derived growth factor receptor alpha) is a type I transmembrane glycoprotein in the class III subfamily of receptor tyrosine kinases (RTK) (1-3). PDGF Rα and PDGF Rβ can form homo- or hetero-dimeric receptors when engaged by dimers of the PDGF family of growth factors, which include disulfide-linked homodimers of PDGF-A, B, C or D, or the heterodimer PDGF-AB that is mainly found in human platelets. While multiple *in vitro* ligand-receptor combinations have been identified, *in vivo* evidence indicates that PDGF Rα primarily binds PDGF-AA and PDGF-CC, while PDGF Rβ primarily binds PDGF-BB and probably PDGF-DD. Like all class III RTKs, the extracellular domain (ECD) of mouse PDGF Rα (amino acids 25-525) contains five immunoglobulin-like domains, while the intracellular region contains a split tyrosine kinase domain (aa 593-954). Within the ECD, mouse PDGF Rα shares 85%, 93%, 84%, 84%, and 81% amino acid sequence identity with human, rat, equine, canine and bovine PDGF Rα respectively. PDGF Rα autophosphorylates upon dimerization, activating signaling cascades in PI 3-kinase Ras-MAP kinase, and PLC-γ pathways (1, 2). Signaling is down-regulated by SHP-2 phosphatase activity and by receptor endocytosis and lysosomal degradation.
PDGF Rα is expressed at low levels in most mesenchymal cells, but is strongly expressed in oligodendrocyte, lung, skin and intestinal progenitor cells and induced by inflammation or growth in culture (1-3). During development, mesenchymal cells expressing PDGF Rα respond to local gradients of epithelially produced PDGF-AA or PDGF-CC during formation of the cranial and cardiac neural crest, retina, gonads, lung alveoli, intestinal villi, skin, hair follicles, skeleton, teeth, palate, and interstitial kidney mesenchyme (1, 4). Deletion of PDGF Rα in mice severely impairs mesenchymal derivatives in both embryo and extraembryonic tissues, and high or low PDGF Rα signaling in humans may result in spina bifida or cleft palate-type malformations. Postnatally, PDGF Rα is implicated in gliomas and fibrotic disorders of lung, heart and skin (scleroderma) (5- 7).

References:

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