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# phospho-PDGF Receptor beta (Tyr1021) Recombinant Rabbit mAb

Catalog # AP97031

## Product Information

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| **Application** | WB |
| **Primary Accession** | P05622 |
| **Other Accession** | P05622 |
| **Reactivity** | Mouse |
| **Host** | Rabbit |
| **Clonality** | Recombinant |
| **Calculated MW** | 122790 |
| **Physical State** | Liquid |
| **Immunogen** | A synthesized peptide derived from mouse PDGFR beta around the phosphorylation site of Y1021 |
| **Epitope Specificity** | ND-pY-IIPL |
| **Isotype** | IgG |
| **Purity** | affinity purified by Protein A |
| **Buffer** | 10mM phosphate buffered saline(pH 7.4) with 150mM sodium chloride, 0.05% BSA, 0.02% Proclin300 and 50% glycerol. |
| **SIMILARITY** | Belongs to the protein kinase superfamily. Tyr protein kinase family. CSF-1/PDGF receptor subfamily. Contains 5 Ig-like C2-type (immunoglobulin-like) domains. Contains 1 protein kinase domain. |
| **SUBUNIT** | Interacts with homodimeric PDGFB and PDGFD, and with heterodimers formed by PDGFA and PDGFB. May also interact with homodimeric PDGFC. Monomer in the absence of bound ligand. Interaction with homodimeric PDGFB, heterodimers formed by PDGFA and PDGFB or homodimeric PDGFD, leads to receptor dimerization, where both PDGFRA homodimers and heterodimers with PDGFRB are observed. Interacts with SH2B2/APS. Interacts directly (tyrosine phosphorylated) with SHB. Interacts (tyrosine phosphorylated) with PIK3R1. Interacts (tyrosine phosphorylated) with CBL. Interacts (tyrosine phosphorylated) with SRC and SRC family kinases. Interacts (tyrosine phosphorylated) with PIK3C2B, maybe indirectly. Interacts (tyrosine phosphorylated) with SHC1, GRB7, GRB10 and NCK1. Interaction with GRB2 is mediated by SHC1. Interacts (via C-terminus) with SLC9A3R1. |
| **Post-translational modifications** | Autophosphorylated on tyrosine residues upon ligand binding. Autophosphorylation occurs in trans, i.e. one subunit of the dimeric receptor phosphorylates tyrosine residues on the other subunit. Phosphorylation at Tyr-579, and to a lesser degree, at Tyr-581, is important for interaction with SRC family kinases. Phosphorylation at Tyr-740 and Tyr-751 is important for interaction with PIK3R1. Phosphorylation at Tyr-751 is important for interaction with NCK1. Phosphorylation at Tyr-771 and Tyr-857 is important for interaction with RASA1/GAP. Phosphorylation at Tyr-857 is important for efficient phosphorylation of PLCG1 and PTPN11, resulting in increased phosphorylation of AKT1, MAPK1/ERK2 and/or MAPK3/ERK1, PDCD6IP/ALIX and STAM, and in increased cell proliferation. Phosphorylation at Tyr-1009 is important for interaction with PTPN11. Phosphorylation at Tyr-1009 and Tyr-1021 is important for interaction with PLCG1. Phosphorylation at Tyr-1021 |

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| | is important for interaction with CBL; PLCG1 and CBL compete for the same binding site. Dephosphorylated by PTPRJ at Tyr-751, Tyr-857, Tyr-1009 and Tyr-1021.N-glycosylated. Ubiquitinated. After autophosphorylation, the receptor is polyubiquitinated, leading to its degradation. |
| **DISEASE** | Note=A chromosomal aberration involving PDGFRB is found in a form of chronic myelomonocytic leukemia (CMML). Translocation t(5;12)(q33;p13) with EVT6/TEL. It is characterized by abnormal clonal myeloid proliferation and by progression to acute myelogenous leukemia (AML). Note=A chromosomal aberration involving PDGFRB may be a cause of acute myelogenous leukemia. Translocation t(5;14)(q33;q32) with TRIP11. The fusion protein may be involved in clonal evolution of leukemia and eosinophilia. Note=A chromosomal aberration involving PDGFRB may be a cause of juvenile myelomonocytic leukemia. Translocation t(5;17)(q33;p11.2) with SPECC1. Defects in PDGFRB are a cause of myeloproliferative disorder chronic with eosinophilia (MPE) [MIM:131440]. A hematologic disorder characterized by malignant eosinophils proliferation. Note=A chromosomal aberration involving PDGFRB is found in many instances of myeloproliferative disorder chronic with eosinophilia. Translocation t(5;12) with ETV6 on chromosome 12 creating an PDGFRB-ETV6 fusion protein. Translocation t(5;15)(q33;q22) with TP53BP1 creating a PDGFRB-TP53BP1 fusion protein. Note=A chromosomal aberration involving PDGFRB may be the cause of a myeloproliferative disorder (MBD) associated with eosinophilia. Translocation t(1;5)(q23;q33) that forms a PDE4DIP-PDGFRB fusion protein. Note=A chromosomal aberration involving PGFRB is found in a patient with T-lymphoblastic lymphoma (T-ALL) and an associated myeloproliferative neoplasm (MPN) with eosinophilia. Translocation t(5;6)(q33-34;q23) with CEP85L. The translocation fuses the 5'-end of CEP85L (isoform 4) to the 3'-end of PDGFRB. |
| **Important Note** | This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications. |
| **Background Descriptions** | Tyrosine-protein kinase that acts as a cell-surface receptor for homodimeric PDGFB and PDGFD and for heterodimers formed by PDGFA and PDGFB, and plays an essential role in the regulation of embryonic development, cell proliferation, survival, differentiation, chemotaxis and migration. |

## Additional Information

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| **Gene ID** | 18596 |
| **Other Names** | CD140B; IBGC4; IMF1; JTK12; KOGS; OPDKD; PDGFR; PDGFR-1; PDGFR1; PENTT; PGFRB_HUMAN; PDGFRB; PDGF-R-beta; PDGFR-beta; Beta platelet-derived growth factor receptor; Beta-type platelet-derived growth factor receptor; CD140 antigen-like family member B; Platelet-derived growth factor receptor 1 (PDGFR-1); 2.7.10.1; PGFRB_MOUSE; PGFRB_RAT; platelet derived growth factor receptor beta; platelet-derived growth factor receptor, beta polypeptide; PDGFRB (phospho-Y1021); p-PDGFRB; phospho-PDGFRB; PDGFRB (phospho-Tyr1021) |
| **Dilution** | WB=1:1000-2000 |
| **Storage** | Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C. |

## Protein Information

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| **Name** | Pdgfrb |
| **Synonyms** | Pdgfr, Pdgfr1 |
| **Function** | Tyrosine-protein kinase that acts as a cell-surface receptor for homodimeric PDGFB and PDGFD and for heterodimers formed by PDGFA and PDGFB, and plays an essential role in the regulation of embryonic development, cell proliferation, survival, differentiation, chemotaxis and migration. Plays an essential role in blood vessel development by promoting proliferation, migration and recruitment of pericytes and smooth muscle cells to endothelial cells. Plays a role in the migration of vascular smooth muscle cells and the formation of neointima at vascular injury sites. Required for normal development of the cardiovascular system. Required for normal recruitment of pericytes (mesangial cells) in the kidney glomerulus, and for normal formation of a branched network of capillaries in kidney glomeruli. Promotes rearrangement of the actin cytoskeleton and the formation of membrane ruffles. Binding of its cognate ligands - homodimeric PDGFB, heterodimers formed by PDGFA and PDGFB or homodimeric PDGFD -leads to the activation of several signaling cascades; the response depends on the nature of the bound ligand and is modulated by the formation of heterodimers between PDGFRA and PDGFRB. Phosphorylates PLCG1, PIK3R1, PTPN11, RASA1/GAP, CBL, SHC1 and NCK1. Activation of PLCG1 leads to the production of the cellular signaling molecules diacylglycerol and inositol 1,4,5-trisphosphate, mobilization of cytosolic Ca(2+) and the activation of protein kinase C. Phosphorylation of PIK3R1, the regulatory subunit of phosphatidylinositol 3-kinase, leads to the activation of the AKT1 signaling pathway. Phosphorylation of SHC1, or of the C-terminus of PTPN11, creates a binding site for GRB2, resulting in the activation of HRAS, RAF1 and down-stream MAP kinases, including MAPK1/ERK2 and/or MAPK3/ERK1. Promotes phosphorylation and activation of SRC family kinases. Promotes phosphorylation of PDCD6IP/ALIX and STAM (By similarity). Receptor signaling is down-regulated by protein phosphatases that dephosphorylate the receptor and its down-stream effectors, and by rapid internalization of the activated receptor. |
| **Cellular Location** | Cell membrane; Single-pass type I membrane protein. Cytoplasmic vesicle. Lysosome lumen. Note=After ligand binding, the autophosphorylated receptor is ubiquitinated and internalized, leading to its degradation |
| **Tissue Location** | Weakly expressed in glomerular mesangial cells and interstitial cells. Up-regulated in areas of renal fibrosis. In mice with unilateral ureteral obstruction, increased expression in interstitial cells at day 4 and expression is markedly elevated at day 7 and is maximal at day 14. |

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.