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**#3164** Store at -20C

# PDGF Receptor $\alpha$ Antibody

**For Research Use Only. Not for Use in Diagnostic Procedures.**

<b>Applications:</b> W, IP, FC-FP	<b>Reactivity:</b> H M	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 195	<b>Source/Isotype:</b> Rabbit
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## Product Usage Information

### Application

Western Blotting  
Immunoprecipitation  
Flow Cytometry (Fixed/Permeabilized)

### Dilution

1:1000  
1:50  
1:200

## Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

## Specificity/Sensitivity

PDGF Receptor  $\alpha$  Antibody detects endogenous levels of PDGF receptor  $\alpha$ . This antibody may cross-react with PDGF receptor  $\beta$ .

## Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy-terminal sequence of human PDGF receptor  $\alpha$ . Antibodies are purified by protein A and peptide affinity chromatography.

## Background

Platelet derived growth factor (PDGF) family proteins exist as several disulphide-bonded, dimeric isoforms (PDGF AA, PDGF AB, PDGF BB, PDGF CC, and PDGF DD) that bind in a specific pattern to two closely related receptor tyrosine kinases, PDGF receptor  $\alpha$  (PDGFR $\alpha$ ) and PDGF receptor  $\beta$  (PDGFR $\beta$ ). PDGFR $\alpha$  and PDGFR $\beta$  share 75% to 85% sequence homology between their two intracellular kinase domains, while the kinase insert and carboxy-terminal tail regions display a lower level (27% to 28%) of homology (1). PDGFR $\alpha$  homodimers bind all PDGF isoforms except those containing PDGF D. PDGFR $\beta$  homodimers bind PDGF BB and DD isoforms, as well as the PDGF AB heterodimer. The heteromeric PDGF receptor  $\alpha/\beta$  binds PDGF B, C, and D homodimers, as well as the PDGF AB heterodimer (2). PDGFR $\alpha$  and PDGFR $\beta$  can each form heterodimers with EGFR, which is also activated by PDGF (3). Various cells differ in the total number of receptors present and in the receptor subunit composition, which may account for responsive differences among cell types to PDGF binding (4). Ligand binding induces receptor dimerization and autophosphorylation, followed by binding and activation of cytoplasmic SH2 domain-containing signal transduction molecules, such as GRB2, Src, GAP, PI3 kinase, PLC $\gamma$ , and NCK. A number of different signaling pathways are initiated by activated PDGF receptors and lead to control of cell growth, actin reorganization, migration, and differentiation (5). Tyr751 in the kinase-insert region of PDGFR $\beta$  is the docking site for PI3 kinase (6). Phosphorylated pentapeptides derived from Tyr751 of PDGFR $\beta$  (pTyr751-Val-Pro-Met-Leu) inhibit the association of the carboxy-terminal SH2 domain of the p85 subunit of PI3 kinase with PDGFR $\beta$  (7). Tyr740 is also required for PDGFR $\beta$ -mediated PI3 kinase activation (8).

## Background References

1. Deuel, T.F. et al. (1988) *Biofactors* 1, 213-217.
2. Bergsten, E. et al. (2001) *Nat. Cell Biol.* 3, 512-516.
3. Betsholtz, C. et al. (2001) *Bioessays* 23, 494-507.
4. Coughlin, S.R. et al. (1988) *Prog. Clin. Biol. Res.* 266, 39-45.
5. Ostman, A. and Heldin, C.H. (2001) *Adv. Cancer Res.* 80, 1-38.
6. Panayotou, G. et al. (1992) *EMBO J.* 11, 4261-4272.
7. Ramalingam, K. et al. (1995) *Bioorg. Med. Chem.* 3, 1263-1272.
8. Kashishian, A. et al. (1992) *EMBO J.* 11, 1373-1382.

## Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

## Western Blot Buffer

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

## Applications Key

**W:** Western Blotting **IP:** Immunoprecipitation **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

## Cross-Reactivity Key

**H:** Human **M:** Mouse

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