

## BACKGROUND

Platelet-Derived Growth Factor (PDGF) acts as a potent mitogen, chemoattractant and survival factor for mesenchymal cells. In addition to its importance in mammalian development, PDGF plays a critical role in physiological repair mechanisms and in the pathogenesis of various proliferative diseases.<sup>1</sup> The biological effects of PDGF are initiated via two related receptor tyrosine kinases, termed alpha and beta PDGF receptors. There are three PDGF isoforms, denoted PDGF-AA, -AB, and -BB, which are homo- or heterodimers of related A and B polypeptide chains. The PDGFR-b binds only B-chain-containing PDGF isoforms, PDGF-BB binds with high affinity ( $K_d$ , 0.5 nM) and PDGF-AB with lower affinity ( $K_d$ , 2.5 nM), but there is no appreciable affinity for PDGF-AA. The  $\alpha$ -receptor binds all three PDGF isoforms with similar affinities ( $K_d$ , 0.1-0.5 nM). The receptors are structurally related transmembrane glycoproteins and form, together with CSF-1 receptor, Flt3, and c-Kit, a subfamily within the superfamily of tyrosine kinases.<sup>2</sup> Binding of PDGF induces dimerization of the receptors *in vitro* and *in vivo*. PDGF-AA induces PDGFR *a-a* homodimers, PDGF-AB induces PDGFR *a-a* homodimers and *a-b* heterodimers, and PDGF-BB induces all three types (*a-a*, *a-b*, and *b-b*) of dimers. Dimerization is accompanied by, and might be a prerequisite for activation of the kinase. Kinase activation is visualized as tyrosine phosphorylation of the receptor molecules, known as autophosphorylation. Tyrosine phosphorylation sites in PDGFR, as with other RTKs, serve two purposes: (i) to control the state of activity of the kinase and (ii) to create binding site for downstream signal transduction molecules, which in many cases also are substrates for the kinase.<sup>3</sup> The activities of the signaling components are ultimately manifested as specific biological responses.

### References:

1. Fredriksson, L et al.: Cytokine Growth Factor Rev. 15:197, 2004.
2. Tallquist, M. & Kazlauskas, A.: Cytokine Growth Factor Rev.15:205, 2004.
3. Funa, K. & Uramoto, H.: Acta Biochim Pol. 50:647, 2003.

## TECHNICAL INFORMATION

### Source:

PDGFR-beta Antibody is a mouse monoclonal antibody raised against purified recombinant human PDGFR-beta fragments expressed in *E. coli*.

### Specificity and Sensitivity:

This antibody detects endogenous PDGFR-beta proteins without cross-reactivity with other family members.

**Storage Buffer:** PBS and 30% glycerol

### Storage:

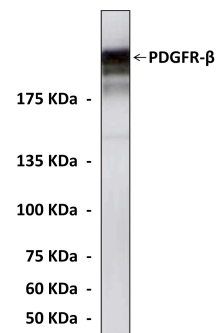
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:1,000
IP	1:50
IHC	1:50
ICC	n/d
FACS	1:50

*\*Optimal dilutions must be determined by end user.*

## QUALITY CONTROL DATA



Western Blot detection of PDGFR-beta proteins in NIH-3T3 cell lysate using PDGFR-beta Antibody.

