

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.¹ 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-beta binds only B-chain-containing PDGF isoforms, PDGF-BB binds with high affinity (IC₅₀, 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.² Binding of PDGF induces dimerization of the receptors *in vitro* and *in vivo*. PDGF-AA induces PDGFR alpha-alpha homodimers, PDGF-AB induces PDGFR alpha-alpha homodimers and alpha-beta heterodimers, and PDGF-BB induces all three types (alpha-alpha, alpha-beta, and beta-beta) 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.³ Phosphorylation of the PDGF receptor-beta at Tyr751 forms a docking site for PI 3-kinase.⁴ 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
4. Li, H.Y. et al.: FEBS Lett. 540:106, 2003

TECHNICAL INFORMATION

Source:

Anti-Phospho-PDGFR-beta (Tyr751) is a rabbit polyclonal antibody raised against a synthetic peptide containing phospho-Tyr751 of human PDGF receptor-beta sequence (746-758).

Specificity and Sensitivity:

Anti-Phospho-PDGFR-beta (Tyr751) specifically detects endogenous levels of PDGF receptor-beta proteins phosphorylated at Tyr751. This antibody does not cross-react with other PDGFR-family members.

Storage Buffer: 0.1 M PBS (pH 7.2), 0.1% glycine, 0.1% sodium azide, 0.1% BSA, 50% glycerol.

Storage:

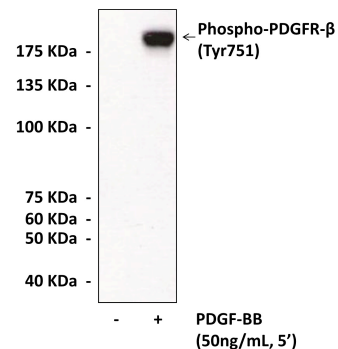
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	n/d
ICC	n/d
FACS	n/d

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

QUALITY CONTROL DATA



Specific detection of PDGF receptor beta proteins containing phosphorylated Tyr751 from human skeletal muscle cells stimulated with PDGF-BB in Western blot analysis using Phospho-PDGFR receptor-beta (Tyr751) Rabbit Polyclonal Antibody.

