

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Pleiotrophin/PTN in ELISAs. In direct ELISAs, no cross-reactivity with recombinant mouse Pleiotrophin/PTN or recombinant human Midkine is observed.
Source	Monoclonal Rat IgG _{2B} Clone # 851406
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>S. frugiperda</i> insect ovarian cell line Sf 21-derived recombinant human Pleiotrophin/PTN Gly33-Asp168 Accession # P21246
Conjugate	Alexa Fluor 350 Excitation Wavelength: 346 nm Emission Wavelength: 442 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

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.

Immunocytochemistry Optimal dilution of this antibody should be experimentally determined.

PREPARATION AND STORAGE

Shipping The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

BACKGROUND

Pleiotrophin (PTN), also called heparin-binding growth-associated molecule (HB-GAM), heparin-binding neurotrophic factor (HBNF), heparin-affinity regulatory peptide (HARP), or osteoblast-specific factor (OSF-1), is an 18 kDa secreted, strongly heparin-binding, developmentally regulated cytokine (1 - 3). PTN and Midkine share 50% amino acid (aa) sequence identity, share some functions, and constitute a family (1 - 3). The second of two TSP1 domains contains the highest affinity binding site for heparin (4, 5). A 15 kDa form which lacks the C-terminus is mitogenic for glioblastoma cells, while full-length PTN is not (6). PTN is a highly conserved protein; human, mouse, rat, canine, porcine, equine and bovine PTN share 98% aa sequence identity or greater. During development, PTN is involved in development of brain, bone, and organs undergoing branching morphogenesis (3). In the adult, it is induced by PDGF and upregulated in many cancers, hematopoietic stem cells and tissues undergoing remodeling (7 - 10). Cell surface receptors for PTN include Syndecan-3 (which mediates neurite outgrowth) and the receptor tyrosine phosphatase PTPRB, also called RPTPβ/ζ (3, 11 - 13). Heparin binding is necessary for engaging these receptors (7, 8). PTN causes PTPRB dimerization and inactivates its phosphatase activity, which allows increased tyrosine phosphorylation of its substrates (12 - 14). One such substrate is the WNT pathway molecule β-catenin, allowing crosstalk of PTN with WNTs (12). PTN activation of the receptor ALK (anaplastic lymphoma kinase) is indirect through PTPRB, and mediates mitogenic, transforming and angiogenic activities of PTN (2, 5, 6, 13). Increased expression of PTN is correlated with neuronal development or stresses such as brain ischemia and Parkinson's disease (2, 3, 7, 8). Both PTN and Midkine have demonstrated bactericidal activity, but only in the absence of heparin (15).

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