

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Pleiotrophin/PTN in direct ELISAs.
Source	Monoclonal Rat IgG _{2A} Clone # 851407
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
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

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.

ELISA	This antibody functions as an ELISA capture antibody when paired with Rat Anti-Human Pleiotrophin/PTN Monoclonal Antibody (Catalog # MAB252R). <i>This product is intended for assay development on various assay platforms requiring antibody pairs.</i>
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PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 12 months from date of receipt, -20 to -70 °C as supplied. 1 month, 2 to 8 °C under sterile conditions after reconstitution. 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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).

References:

References

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