

Pleiotrophin Protein, Mouse (HEK293, His)

Cat. No.:	HY-P71213
Synonyms:	Pleiotrophin; PTN; Heparin-binding brain mitogen; HBBM; Heparin-binding growth factor 8; HBGF-8; Osteoblast-specific factor 1; OSF-1;
Species:	Mouse
Source:	HEK293
Accession:	P63089 (G33-D168)
Gene ID:	19242
Molecular Weight:	Approximately 19.0 kDa

PROPERTIES

AA Sequence	<p>G K K E K P E K K V K K S D C G E W Q W S V C V P T S G D C G L G T R E G T R T</p> <p>G A E C K Q T M K T Q R C K I P C N W K K Q F G A E C K Y Q F Q A W G E C D L N</p> <p>T A L K T R T G S L K R A L H N A D C Q K T V T I S K P C G K L T K P K P Q A E</p> <p>S K K K K K E G K K Q E K M L D</p>
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>Pleiotrophin (PTN) is a secreted growth factor that transduces its signal through both cell-surface proteoglycan and non-proteoglycan receptors. It binds to the chondroitin sulfate (CS) groups of cell-surface proteoglycan receptors, regulating crucial processes such as cell proliferation, survival, growth, differentiation, and migration in various tissues, including neurons and bone. PTN plays a pivotal role in synaptic plasticity and learning-related behavior by inhibiting long-term synaptic potentiation. Through binding to PTPRZ1, PTN neutralizes the negative charges of the CS chains, inducing PTPRZ1 clustering and subsequent inactivation of its phosphatase activity. This leads to increased tyrosine phosphorylation of PTPRZ1 substrates, such as ALK or AFAP1L2, activating the PI3K-AKT pathway. PTN also forms complexes with PTPRZ1 and integrin alpha-V/beta-3, stimulating endothelial cell migration. In the adult hippocampus, PTN promotes dendritic</p>
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arborization, spine development, and functional integration of newborn granule neurons through ALK and AKT signaling. Additionally, PTN interacts with GPC2, SDC3, and other receptors, mediating diverse functions related to bone formation, neural stem cell proliferation and differentiation, hematopoietic regeneration, and various physiological processes in the female reproductive system and auditory response. The intricate network of PTN interactions underscores its multifaceted role in cellular and tissue-level regulatory mechanisms.

Caution: Product has not been fully validated for medical applications. For research use only.

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