Active Pleiotrophin (PTN)

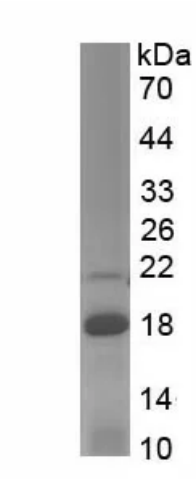
Catalog#:PEH12643

概述（Summary）

别称（Alternative Names）	HARP; HBGF8; HBNF; NEGF1; Heparin Binding Growth Factor 8; Neurite Growth-Promoting Factor 1; Heparin Affin Regulatory Peptide; Heparin Binding Growth Associated Molecule
纯度（Purity）	Greater than 95% as determined by reducing SDS-PAGE.
内毒素（Endotoxin level）	Please contact with the lab for this information
蛋白构建（Construction）	【Gly33-Asp168】
Accession #	P21246
表达宿主（Host）	E.coli
种属（Species）	Homo sapiens (Human)
预测分子量（Predicted MW）	16.4 kDa
制剂（Form）	Lyophilized from a 0.2 μm filtered solution of PBS, pH7.4, containing 0.01% SKL, 1mM DTT, 5% Trehalose and Proclin300.
运输方式（Shipping）	The product is shipped with ice bag. Upon receipt, store it immediately at the temperature listed below.
稳定性&储存（Stability &Storage）	12 months at -20°C to -80°C in lyophilized state.6 months at -20°C to -80°C under sterile conditions after reconstitution.7-10 days at 2°C to 8°C under sterile conditions after reconstitution.Please minimize freeze-thaw cycles.
复溶（Reconstitution）	Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.
背景介绍（References）	Secreted growth factor that mediates its signal through cell-surface proteoglycan and non-proteoglycan receptors. Binds cell-surface proteoglycan receptor via their chondroitin sulfate (CS) groups. Thereby regulates many processes like cell proliferation, cell survival, cell growth, cell differentiation and cell migration in several tissues namely neuron and bone. Also plays a role in synaptic plasticity and learning-related behavior by inhibiting long-term synaptic potentiation. Binds PTPRZ1, leading to neutralization of the negative charges of the CS chains

of PTPRZ1, inducing PTPRZ1 clustering, thereby causing the dimerization and inactivation of its phosphatase activity leading to increased tyrosine phosphorylation of each of the PTPRZ1 substrates like ALK, CTNNB1 or AFAP1L2 in order to activate the PI3K-AKT pathway. Through PTPRZ1 binding controls oligodendrocyte precursor cell differentiation by enhancing the phosphorylation of AFAP1L2 in order to activate the PI3K-AKT pathway. Forms a complex with PTPRZ1 and integrin alpha-V/beta-3 (ITGAV:ITGB3) that stimulates endothelial cell migration through SRC dephosphorylation and activation that consequently leads to ITGB3 'Tyr-773' phosphorylation. In adult hippocampus promotes dendritic arborization, spine development, and functional integration and connectivity of newborn granule neurons through ALK by activating AKT signaling pathway. Binds GPC2 and chondroitin sulfate proteoglycans (CSPGs) at the neuron surface, leading to abrogation of binding between PTPRS and CSPGs and neurite outgrowth promotion. Binds SDC3 and mediates bone formation by recruiting and attaching osteoblasts/osteoblast precursors to the sites for new bone deposition. Binds ALK and promotes cell survival and cell proliferation through MAPK pathway activation. Inhibits proliferation and enhances differentiation of neural stem cells by inhibiting FGF2-induced fibroblast growth factor receptor signaling pathway. Mediates regulatory mechanisms in normal hemostasis and in hematopoietic regeneration and in maintaining the balance of myeloid and lymphoid regeneration. In addition may play a role in the female reproductive system, auditory response and the progesterone-induced decidualization pathway.

电泳图（SDS-PAGE image）



Greater than 95% as determined by reducing SDS-PAGE.

活性图（Bioactivity image）

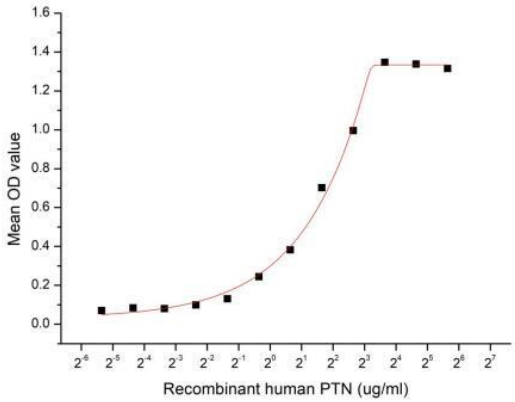


Figure 1. The binding activity of PTN and SDC1

Pleiotrophin (PTN) is a 136 amino acid secreted heparin-binding cytokine that signals diverse functions, including lineage-specific differentiation of glial progenitor cells, neurite outgrowth, and angiogenesis. A considerable amount of research has been carried out to understand the mechanisms by which PTN regulates these events. PTN has now been shown to bind a diverse collection of receptors including Syndecan 1 (SDC1). A functional binding ELISA assay was conducted to detect the interaction of recombinant human PTN and recombinant human SDC1. Briefly, PTN were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100 µl were then transferred to SDC1-coated (2 ug/ml, 100 ul/well) microtiter wells and incubated for 1h at 37℃. Wells were washed with PBST and incubated for 1h with PTN pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody, wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37℃. Finally, add 50µL stop solution to the wells and read at 450nm immediately. The binding activity of recombinant human PTN and recombinant human SDC1 was shown in Figure 1, the EC50 was 3.47 ug/ml.

注意事项（Note）

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