

Product Information

Pleiotrophin, human recombinant, expressed in *Sf 21* insect cells

Catalog Number **P5333**

Storage Temperature $-20\text{ }^{\circ}\text{C}$

Synonyms: HARP, HB-GAM, PTN, Heparin affinity regulatory peptide, Heparin-binding growth factor, Heparin-binding growth-associated molecule

Product Description

Recombinant, human pleiotrophin is produced in the insect cell line *Sf 21* by infection with a recombinant baculovirus containing a DNA sequence that encodes the 168 amino acid residue human pleiotrophin precursor.¹ The 136 amino acid residue mature recombinant human pleiotrophin is produced after removal of the 32 amino acid residue signal peptide.

Recombinant PTN has a predicted molecular mass of ~ 15.3 kDa. In SDS-PAGE, it migrates as an 18 kDa band, which may be due to its high lysine content. Pleiotrophin is highly conserved. Human, bovine, rat, and mouse PTN share $>98\%$ amino acid sequence homology.¹

Pleiotrophin (PTN) is a member of a family of heparin-binding, developmentally regulated cytokines.¹ It is also known as heparin-binding brain mitogen (HBBM), heparin-binding growth factor-8 (HBGF-8),² heparin-binding neurite promoting factor, heparin-binding neurotrophic factor (HBNF), heparin-affinity regulatory peptide (HARP), heparin-binding growth-associated molecule (HB-GAM),³ and osteoblast-specific factor (OSF-1). PTN is active in growth and development, and has mitogenic and neurite outgrowth activity.¹ The gene for pleiotrophin is highly expressed in brain, uterus, gut, muscle, lung, and skin tissues. Pleiotrophin mRNA is expressed in osteoblasts, chondrocytes, fibroblasts, astrocytes, Schwann cells, and tumor cells.⁴

Recombinant, human Pleiotrophin is lyophilized from a $0.2\text{ }\mu\text{m}$ filtered solution in phosphate buffered saline (PBS).

Purity: $\geq 97\%$ (SDS-PAGE)

Endotoxin: ≤ 0.1 ng/ μg protein
(LAL [Limulus ameocyte lysate] method)

EC₅₀: 3–8 $\mu\text{g}/\text{ml}$

The biological activity of recombinant, human Pleiotrophin is measured by its ability to enhance neurite outgrowth of cerebral cortical neurons of E16-18 rat embryos.⁶ The EC₅₀ is defined as the effective concentration of growth factor that elicits a 50% increase in neurite outgrowth from cerebral cortical neurons of E16-18 rat embryos.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Reconstitute the contents of the vial using $0.2\text{ }\mu\text{m}$ filtered phosphate buffered saline. Prepare a stock solution of $\geq 10\text{ }\mu\text{g}/\text{ml}$.

Storage/Stability

Store the product at $-20\text{ }^{\circ}\text{C}$.

Upon reconstitution, store at $2\text{--}8\text{ }^{\circ}\text{C}$ for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

References

1. Li, Y., et al., *Science*, **250**, 1690 (1990).
2. Milner, P., et al., *Biochem. Biophys. Res. Commun.*, **165**, 1096 (1989).
3. Merenmies, J., et al., *J. Biol. Chem.*, **265**, 28, 16721 (1990).
4. Tezuka, K., et al., *Biochem. Biophys. Res. Commun.*, **173**, 246 (1990).
5. Hampton, B.S., et al., *Mol. Biol. Cell*, **3**, 85 (1992).
6. Muramatsu, H., et al., *Biochem. Biophys. Res. Commun.*, **177**, 652 (1991).

JR,FF,KAA,MAM 10/10-1

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.