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Product Information

Platelet Derived Growth Factor (PDGF)

Human, Natural

Product Number **P 8147**

Product Description

Platelet Derived Growth Factor (PDGF) is purified from human platelets. The human platelets used for the isolation was certified by the supplier to be HIV-1 and HbsAg negative at the time of shipment. The purified human PDGF consists mainly of the disulfide-linked PDGF-A chain and PDGF-B chain heterodimer. The heterogeneously glycosylated human PDGF migrates as multiple bands in SDS-PAGE with a molecular weight range of 28 - 31 kDa under non-reducing conditions.

Platelet Derived Growth Factor (PDGF) is a glycoprotein, consisting of two similar subunits, designated A and B chains, which are linked through disulfide bridges.¹⁻⁴ PDGF is one of the principal mitogens of mammalian serum for cells possessing receptors for its binding.⁵⁻⁸ Stored in the α -granules of platelets, PDGF is released during the clotting process and acts on fibroblasts and other cells that initiate healing and tissue restoration. Analysis of PDGF from many vertebrate species has revealed a high degree of evolutionary conservation.⁹⁻¹⁵ PDGF exerts its effect as a mitogen through receptor mediated interaction with a variety of target cells. These cells include dermal and tendon fibroblasts, vascular smooth muscle cells, glial cells, and chondrocytes. In addition, PDGF is a chemo-attractant for fibroblasts, smooth muscle cells, monocytes and neutrophils.¹⁵⁻¹⁸

Reagent

Lyophilized from a 0.2 μ m-filtered solution in 40% acetonitrile containing 0.1% TFA.

Precautions and Disclaimer

Handle as if capable of transmitting infectious agents. Human blood products should always be treated in accordance with universal handling precautions. Refer to Material Safety Data Sheet.

Storage/Stability

Prior to reconstitution, store at -20°C . After reconstitution, the product may be stored for up to one month at $2-8^{\circ}\text{C}$. For extended use, freeze in working aliquots. Repeated freezing and thawing is **not** recommended. Do not store in a frost free freezer.

Reconstitution and Use

Reconstitute the contents of the vial using 0.2 μ m filtered 4 mM HCl containing 0.1% BSA to prepare a stock solution of no less than 10 $\mu\text{g/ml}$ of the cytokine. PDGF is extremely hydrophobic and should not be stored in glass containers after reconstitution. Additional filtration of the stock solution is not recommended and may result in product loss due to adsorption onto the filter membrane.

Product Profile

The biological activity of PDGF was measured by its ability to stimulate ^3H -thymidine incorporation in NR6-3T3 fibroblasts.¹⁹ The EC_{50} is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Purity: \geq 97% by SDS-PAGE

Endotoxin: \leq 1.0 EU (endotoxin units)/ μ g of the cytokine as determined by the LAL method.

References

1. Ross, R. and J. Glomset, *Science*, **180**, 1332 (1973).
2. Ross, R., et al., *Proc. Natl. Acad. Sci. USA*, **71**, 1207 (1974).
3. Kohler, N. and Lipton, A., *Exp. Cell Res.*, **87**, 297 (1974).
4. Kaplan, D., et al., *Blood*, **53**, 1043 (1979).
5. Antoniades, H., et al., *Proc. Natl. Acad. Sci. USA*, **76**, 1809 (1979).
6. Heldin, C., et al., *Proc. Natl. Acad. Sci. USA*, **76**, 3722 (1979).
7. Deuel T., et al., *J. Biol. Chem.*, **256**, 8896 (1981).
8. Betsholtz, C., et al., *Nature*, **320**, 695 (1986).
9. Giese, N., et al., *Science*, **236**, 1315 (1987).
10. Sauer, M. and Donoghue, D., *Mol. Cell. Biol.*, **8**, 1011 (1988).
11. Antoniades, H., and Pantazis, P., *Meth. Enzymol.*, **169**, 210 (1989).
12. Ross, R., et al., *Cell*, **46**, 155 (1986).
13. Heldin, C., et al., *Mol. Cell. Endocrinol.*, **39**, 169 (1985).
14. Barnes, D., *Meth. Enzymol.*, **163**, 707 (1988).
15. Pierce, G., et al., *J. Cell Biol.*, **109**, 429 (1989).
16. Barrett, T. and Benditt, E., *Proc. Natl. Acad. Sci. USA*, **85**, 2810 (1988).
17. Ross, R., et al., *Science*, **248**, 1009 (1990).
18. Collins, T., *Nature*, **316**, 748 (1985).
19. Raines, E.W., et al., *Methods in Enzymology*, **109**, 749 (1985).

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