

Human Recombinant PDGF-AB

Platelet-derived growth factor AB

Catalog #78096	10 µg
Catalog #78096.1	100 µg
Catalog #78096.2	1000 µg

Product Description

Platelet-derived growth factor (PDGF) is a dimeric glycoprotein consisting of two disulfide bridge-stabilized polypeptide chains, A and B, which are assembled as heterodimers (PDGF-AB) or homodimers (PDGF-AA and PDGF-BB) (Fretto et al.; Westermark & Heldin). PDGF signals through the receptor tyrosine kinases PDGFRalpha and PDGFRbeta. It has been shown that PDGF-induced migration involves signaling pathways involving MEK/ERK, EGFR, Src, and PI3K/AKT (Kim et al.). PDGF is a potent mitogen for cells of mesenchymal origin such as fibroblasts, glial cells, and vascular smooth muscle cells. PDGF has been implicated in pathogenesis of atherosclerosis, glomerulonephritis, cancer, and in the contraction of vascular smooth muscle cells of rat aortic tissues (Fretto et al.; Sachinidis et al.). It has been shown that PDGF-AB together with 5-Azacytidine (Catalog #72012), induces the conversion of mature bone and fat cells into tissue-regenerative multipotent stem cells (Chandranathan et al.).

Product Information

Alternative Names:	GDGF, Glioma-derived growth factor, ODGF, Osteosarcoma-derived growth factor, Platelet-derived growth factor-AB
Accession Number:	A chain: P04085; B chain: P01127
Amino Acid Sequence:	Alpha chain: MSIEEAVPAV CKTRTVIYEI PRSQVDPTSA NFLIWPPCVE VKRCTGCCNT SSVKCQPSRV HHRSVKVAKV EYVRKKPKLK EVQVRLEEHL ECACATTSLN PDYREEDTGR PRES GKRRKR KRLKPT Beta chain: MSLGSLTIAE PAMIAECKTR TEVFEISRRL IDRTNANFLV WPPCVEVQRC SGCCNNRNVQ CRPTQVQLRP VQVRKIEIVR KKPIFKKATV TLEDHLACKC ETVAARPVT
Predicted Molecular Mass:	14.4 kDa alpha monomer, 12.4 kDa beta monomer; 26.8 kDa dimer
Species:	Human
Product Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.
Source:	E. coli
Purity:	≥ 95%

Specifications

Activity:	The specific activity is $\geq 5 \times 10^4$ units/mg ($EC_{50} \leq 20$ ng/mL) as determined by a cell proliferation assay using BALB/c 3T3 cells.
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/ μ g protein.

Preparation and Storage

Stability and Storage:	Store at -20°C to -80°C. Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data

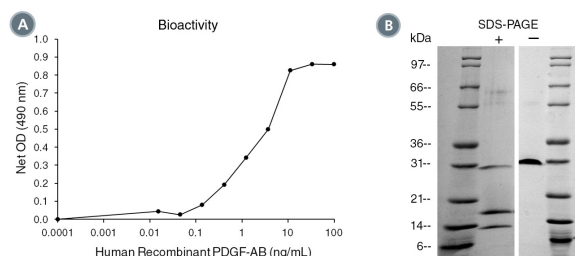


Figure 1. Biological Activity and Molecular Mass of Human Recombinant PDGF-AB

(A) The biological activity of Human Recombinant PDGF-AB was tested by its ability to promote the proliferation of BALB/c 3T3 cells. Cell proliferation was measured after 46 hours using a fluorometric assay method. The EC₅₀ is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC₅₀ in the example above is less than 1.8 ng/mL.

(B) 1 µg of Human Recombinant PDGF-AB was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant PDGF-AB is a heterodimer of one 14.4 kDa alpha-chain and 12.4 kDa beta-chain with a predicted total molecular mass of 26.8 kDa.

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

- Chandrakanthan V et al. (2016) PDGF-AB and 5-Azacytidine induce conversion of somatic cells into tissue-regenerative multipotent stem cells. *Proc Natl Acad Sci U S A* 113(16): E2306–15.
- Fretto LJ et al. (1993) Mechanism of platelet-derived growth factor (PDGF) AA, AB, and BB binding to alpha and beta PDGF receptor. *J Biol Chem* 268(5): 3625–31.
- Kim SJ et al. (2007) Differential effect of FGF and PDGF on cell proliferation and migration in osteoblastic cells. *Growth Factors* 25(2): 77–86.
- Sachinidis A et al. (1990) The platelet-derived growth factor isomers, PDGF-AA, PDGF-AB and PDGF-BB, induce contraction of vascular smooth muscle cells by different intracellular mechanisms. *FEBS Lett* 275(1-2): 95–8.
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