Cytokines

Human Recombinant PDGF-AA, ACF

Platelet-derived growth factor, animal component-free

Catalog #	78152	10 µg
	78152.1	100 µg
	78152.2	1000 µg

STEMCELL™ TECHNOLOGIES
Scientists Helping Scientists™ | WWW.STEMCELL.COM
TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Product Description

Platelet-derived growth factor (PDGF) is a dimeric glycoprotein consisting of two disulfide bridge-stabilized polypeptide chains, A and B, that 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. PDGF-induced migration has been shown to involve MEK/ERK, EGFR, Src, and PI3K/AKT signaling pathways (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 suggested that PDGF-AA is an important autocrine regulator of vascular endothelial growth factor (VEGF) expression in non-small cell lung carcinomas (Shikada et al.). PDGF-AA also mediates proliferation of oligodendrocyte progenitor cells and oligodendrocyte lineage differentiation through the activation of extracellular signal-regulated kinases 1 and 2 (Erk1/2) (Hu et al.). PDGF-AA is commonly used to differentiate human pluripotent stem cell (hPSC)-derived neural progenitor cells into oligodendrocyte precursor cells (Piao et al.). This product is animal component-free.

Product Information

Alternative Names:	GDGF, Glioma-derived growth factor, ODGF, Osteosarcoma-derived growth factor
Accession Number:	P04085
Amino Acid Sequence:	MSIEEAVPAV CKTRTVIYEI PRSQVDPTSA NFLIWPPCVE VKRCTGCCNT SSVKCQPSRV HHRSVKVAKV EYVRKKPKLK EVQVRLEEHL ECACATTSLN PDYREEDTGR PRESGKKRKR KRLKPT
Predicted Molecular Mass:	14.4 kDa monomer; 28.9 kDa dimer
Species:	Human
Cross Reactivity:	Rat
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid
Source:	E. coli

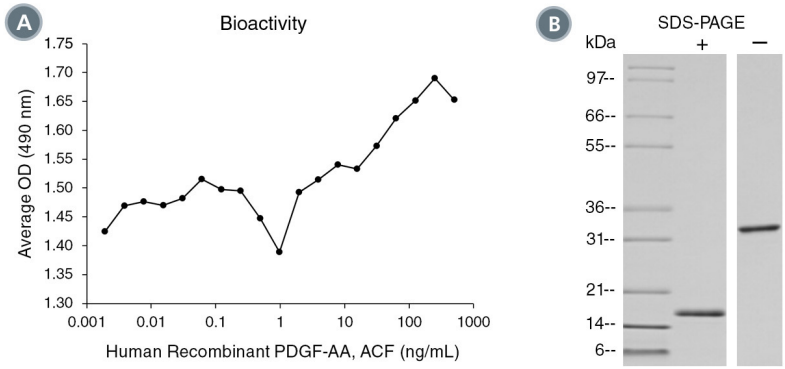
Specifications

Activity:	The specific activity is ≥ 2.0 x 10^4 units/mg (EC50 ≤ 50 ng/mL) as determined by a cell proliferation assay using NR6R-3T3 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	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



(A) The biological activity of Human Recombinant PDGF-AA, ACF was tested by its ability to promote the proliferation of NR6R-3T3 cells. Cell proliferation was measured after 46 hours in culture 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 25.7 ng/mL.
(B) 1 µg of Human Recombinant PDGF-AA, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant PDGF-AA, ACF has a predicted molecular mass of 28.9 kDa (14.4 kDa monomer).

Related Products

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

References

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.
Hu J-G et al. (2008) Platelet-derived growth factor-AA mediates oligodendrocyte lineage differentiation through activation of extracellular signal-regulated kinase signaling pathway. Neuroscience 151(1): 138–47.
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.
Piao J et al. (2015) Human embryonic stem cell-derived oligodendrocyte progenitors remyelinate the brain and rescue behavioral deficits following radiation. Cell Stem Cell 16(2): 198–210.
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.
Shikada Y et al. (2005) Platelet-derived growth factor-AA is an essential and autocrine regulator of vascular endothelial growth factor expression in non-small cell lung carcinomas. Cancer Res 65(16): 7241–8.
Westermark B & Heldin CH. (1993) Platelet-derived growth factor. Structure, function and implications in normal and malignant cell growth. Acta Oncol 32(2): 101–5.