Recombinant Human PDGF-CC

Catalog Number: 1687-CC

DESCRIPTION

Source	*E. coli*-derived Val235-Gly345, with an N-terminal Met and 6-His tag Accession # NP_057289
N-terminal Sequence Analysis	Met
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	13.4 kDa (monomer)

SPECIFICATIONS

Activity	Measured in a cell proliferation assay using NR6R-3T3 mouse fibroblast cells. Raines, E.W. *et al.* (1985) Methods Enzymol. **109**:749. The ED_{50} for this effect is 70-350 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile 4 mM HCl containing at least 0.1% human or bovine serum albumin.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

The platelet-derived growth factor (PDGF) family consists of proteins derived from four genes (PDGF-A, -B, -C, and -D) that form four disulfide-linked homodimers (PDGF-AA, -BB, -CC, and -DD) and one heterodimer (PDGF-AB) (1). These proteins regulate diverse cellular functions by binding to and inducing the homo- or hetero-dimerization of two receptor tyrosine kinases (PDGF Rα and Rβ). Within the PDGF family, PDGF-C and PDGF-D constitute a subgroup that shares similar structural organization (2, 3). Both proteins are secreted as inactive homodimeric latent growth factors. Each monomer has two distinct protein domains: an N-terminal CUB domain; and a C-terminal PDGF/VEGF homology domain that shares 27 - 35% sequence identity with the corresponding regions of other PDGF family members. An 80 - 90 amino acid residue hinge region connects the two domains. Sequential removal of the CUB domains in the homodimeric latent growth factor by extracellular proteolytic cleavage at the hinge region is required to release the bioactive PDGF/VEGF homology domain(1). Twelve cysteine residues are found within the PDGF/VEGF homology domain of PDGF-C, including the characteristic eight invariant cysteine residues involved in inter- and intra-chains disulfide-bonds needed for the formation of the cysteine-knot structure. Bioactive PDGF-CC binds with high-affinity to PDGF Rα but not PDGF Rβ and activates PDGF Rα homodimerization (1). PDGF-CC has also been shown to activate PDGF Rαβ heterodimers (1). PDGF-CC is expressed in multiple embryonic and adult cell types and tissues. During embryonic development, PDGF-CC is involved in ductal morphogenesis (4). PDGF-CC is a potent angiogenic factor that stimulates vessel growth in the mouse cornea pocket assay and in the CAM assay (5). It stimulates coronary artery smooth muscle cell proliferation and may play an important role in cardiovascular development and function (6). PDGF-CC is also expressed in many tumors and tumor cell lines and has a causative role in tumorigenesis (7). Mature human and mouse PDGF-C share 93.7% amino acid sequence identity.

References:

1. Li, X. and U. Eriksson (2003) Cytokine &Growth Factor Rev. **14**:91.
2. LaRochells, W.J. *et al.* (2001) Nature Cell Biol. **3**:517.
3. Li, X. *et al.* (2000) Nature Cell Biol. **2**:302.
4. Aase, K. *et al.* (2002) Mech Dev. **110**:187.
5. Cao, R.H. *et al.* (2002) FASEB J. **16**:1575.
6. Gilbertson, D. *et al.* (2001) J. Biol. Chem. **276**:27406.
7. Zwerner, J.P. and W.A. May (2001) Oncogene **20**:626.

Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449