



Recombinant Human Placenta Growth Factor-1



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	300-016
Size:	20 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

Gene:	<i>Pgf</i>
Synonyms:	PlGF, Placenta Growth Factor

Human Placenta Growth Factor-1 (PlGF-1), a 19 kDa protein consisting of 131 amino acid residues is produced as a homodimer. Human Placenta Growth Factor (PlGF) is a polypeptide growth factor and a member of the platelet-derived growth factor family but more related to vascular endothelial growth factor (VEGF). PlGF-1 acts only as a very weak mitogen for some endothelial cell types and as a potent chemoattractant for monocytes. The physiological function in vivo is still controversial. In several reports it was shown not to be a potent mitogen for endothelial cells and not angiogenic in vivo by using different assays. Very recently it was shown by one investigator, that PlGF-1 from cell culture supernatants was angiogenic in the CAM assay and in the rabbit cornea assay. At least one high-affinity receptor for PlGF (FLT-1 or VEGF-R1) has been demonstrated in different primary cell types (e.g. human umbilical vein endothelial cells and monocytes) but PlGF does not bind to KDR/flk-1. Two different proteins can be generated by differential splicing of the human PlGF gene: PlGF-1 (131 aa native chain) and PlGF-2 (152 aa native chain). Both mitogens are secretable proteins, but PlGF-2 can bind to heparin with high affinity. PlGF-1 is a homodimer, but preparations of PlGF show some heterogeneity on SDS gels depending of the varying degrees of glycosylation. All dimeric forms possess a similar biological profile. There is good evidence that heterodimeric molecules between VEGF and PlGF exist and that they are biological active. Different cells and tissues (e.g. placenta) express PlGF-1 and PlGF-2 at different rates. A very related protein of PlGF is VEGF with about 53% homology and VEGF-B with similar biological activities.

References

1. DiPalma, T. et al. (1996) Mamm. Genome 7:6.
2. Cao, Y. et al. (1997) Biochem. Biophys. Res. Commun. 235:493.
3. Ferrara, N. et al. (1997) Endocrin. Rev. 18:4
4. Kim KJ et al, Exp Mol Med 44:10-9, 2012
5. De Falco S, Exp Mol Med 44:1-9, 2012

Sequence

LPAVPPQQWALSAGNGSSEVEVVPFQEVWGRSYCRALERLVDVVSEYPSEVE
HMFSPSCVSLLRCTGCCGDNLHCVPVETANVTMQLLKIRSGDRPSYVELTF
SQHVRCECRPLREKMKPERCGDAVPRR

Database References

Protein RefSeq:	NP_001193941.1
Uniprot ID:	P49763
mRNA RefSeq:	NM_001207012.1

Product Specifications

Expressed in	Insect cells
Purity	> 95% by SDS-PAGE & silver stain
Buffer	50 mM acetic acid
Stabilizer	BSA
Formulation	lyophilized
Length (aa):	131
MW:	~ 34 kDa (Dimer)
Result by N-terminal sequencing	LPAVPPQQWA

Stability: The lyophilized human PlGF-1, though stable at room temperature, is best stored in working aliquots at -20°C to -70°C .

Reconstitution: Centrifuge the vial prior to opening! The PlGF-1 is supplied in lyophilized form with carrier-protein (BSA) and can be reconstituted with 50mM acetic acid or PBS/water. This solution can be diluted into other buffered solutions or stored frozen for future use.



AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Measured by its ability to bind to immobilized rh-sFlt-1 in a functional ELISA. Recombinant human PlGF-1 can bind to immobilized rh-sFlt-1 (100 ng/well) with a linear range at 0.5 - 10 ng/mL.



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Handling/Applications

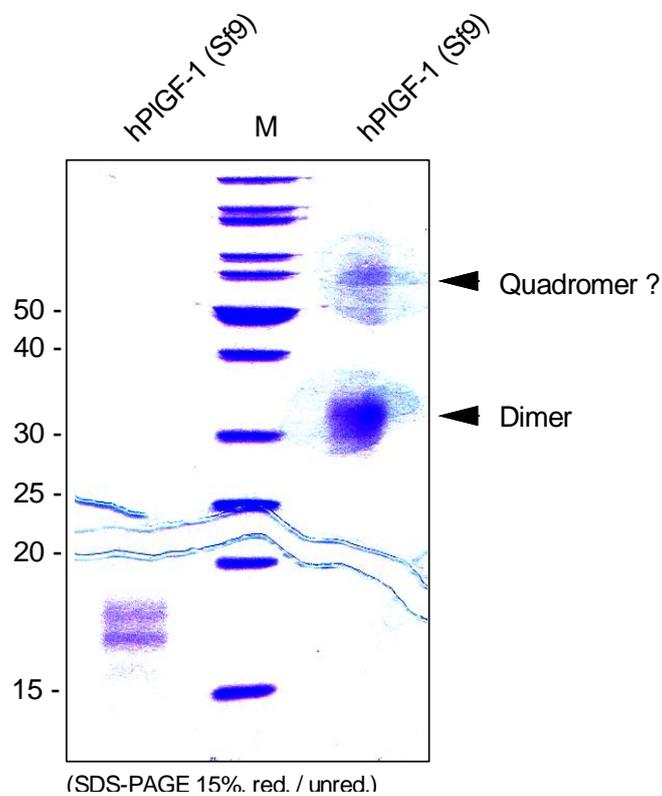


Fig. 1: SDS-PAGE analysis of recombinant human PIGF-1. Samples were loaded in 15% SDS-polyacrylamide gel under non-reducing conditions and stained with Coomassie blue.

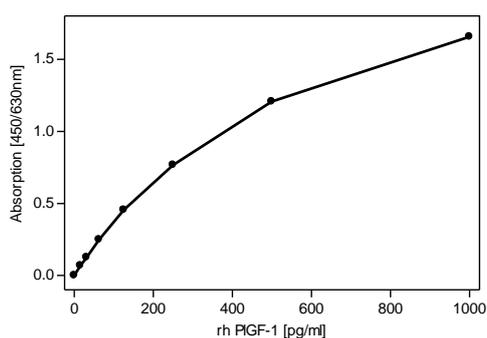


Figure 2. PIGF Sandwich-ELISA using recombinant human PIGF-1 as standard [Cat# 300-015]. Mouse anti-human PIGF #178/G10 (Cat# 101-M67) was used as capture antibody, Biotinylated rabbit anti-human PIGF (Cat# 102-PABi04) was used for detection.