



# Recombinant Human Placenta Growth Factor-2



**FOR RESEARCH ONLY! NOT FOR HUMAN USE!**

Cat.-no:	300-020
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-2 (PlGF-2), a 22kDa protein consisting of 152 amino acid residues is produced as a homodimer. 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 acts only as a weak mitogen for those cell types possessing receptors for binding (e.g. vascular endothelial cells). At least one high-affinity receptor for PlGF (Flt-1 or VEGFR-1) has been demonstrated in different primary cell types (e.g. human umbilical vein endothelial cells and monocytes). In addition to its action as a weak mitogen it is also a chemoattractant for monocytes and endothelial cells. Two different proteins are generated by differential splicing of the human PlGF gene: PlGF-1 (131aa 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 is apparently a homodimer, but preparations of PlGF show some heterogeneity on SDS gels depending of the varying degrees of glycosylation.

All dimeric forms possess similar biological activities. If PlGF is angiogenic in vivo is not clear. However, heterodimers between VEGF and PlGF are mitogenic for endothelial cells and have strong angiogenic activity in vivo (e.g. in the CAM assay or in the cornea pocket assay). Different cells and tissues (e.g. placenta) express PlGF-1 and PlGF-2 at different rates. A much 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
6. Schneider K et al, J Neuro-Oncol. (DOI:10.1007/s11060-014-1647-3), 2014

## Sequence

LPAVPPQQWALSAGNGSSEVEVVPFQEVWGRSYCRALERLVDVVSEYPSSEVE  
HMFSPSCVSLLRCTGCCGDNELHCVPVETANVTMQLLKRSGDRPSYVELTF  
SQHVRCECRPLREKMKPERRRPPKGRGKRREKQRPTDCHLCGDAVPRR

## Database References

Protein RefSeq:	NP_001193941.1
Uniprot ID:	P49763-3
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):	152
MW:	~ 45 kDa (Dimer)
Result by N-terminal sequencing	LPAVPPQQWA

**Stability:** The lyophilized human PlGF-2, though stable at room temperature, is best stored in working aliquots at -20°C to -70°C.

**Reconstitution:** The PlGF-2 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.



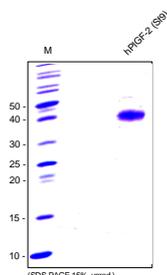
**AVOID REPEATED FREEZE AND THAW CYCLES!**

**Biological Activity:** Measured by its ability to bind to immobilized rh-sFlt-1 in a functional ELISA. Recombinant human sFlt-1 can bind to immobilized rh-PlGF-2 (50 ng/well) with a linear range at 0.5 - 10 ng/mL.

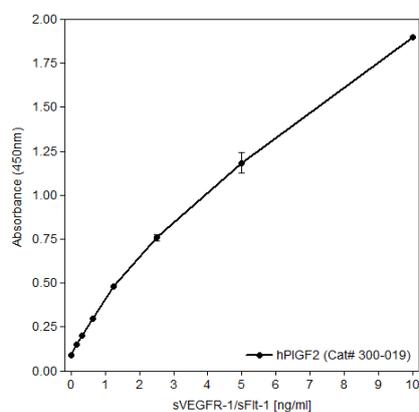


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## Handling/Applications



**Fig. 1:** SDS-PAGE analysis of recombinant human PIGF-2. Sample was loaded in 15% SDS-polyacrylamide gel under non-reducing conditions and stained with Coomassie blue.



**Fig. 2:** (Functional ELISA) Recombinant human PIGF-2 was coated with 0.5µg/ml and increasing amounts of recombinant human sFlt-1(5) was added as standard [Cat# S01-011]. The monoclonal mouse anti-human VEGFR-1/Flt-1 antibody [Cat# 101-M28] in combination with a goat anti-mouse-Biotin antibody was used for detection.