Recombinant Rat Placenta Growth Factor

FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	**R20-061**
Size:	5 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

Gene:	*Pgf*
Synonyms:	PlGF, Placenta Growth Factor

Placenta growth factor (PlGF) is a member of the vascular endothelial growth factor (VEGF) family of growth factors. PlGF and VEGF share primary structural as well as limited amino acid sequence homology with the A and B chains of PDGF. All eight cysteine residues involved in intra and interchain disulfides are conserved among these growth factors. As a result of alternative splicing, three PlGF RNAs encoding monomeric human PlGF-1, PlGF-2 and PlGF-3 isoform precursors containing 149, 179 and 219 amino acid residues, respectively, have been described. In normal mouse and rat tissues, only one PlGF mRNA encoding the equivalent of human PlGF-2 has been identified. Rat PlGF shares about 60% amino acid identity with human PlGF-2. The gene for PlGF has been mapped to rat chromosome 6. PlGF binds with high affinity to Flt1, but not to Flk1/KDR.
However, little information regarding the expression pattern and cellular localization of PlGF mRNA in rat placenta during pregnancy is known. RT-PCR analysis shows that the expression level of PlGF mRNA increased as gestation advanced. Using in situ hybridization histochemistry, positive cells of PlGF mRNA were detected in chorionic villi, in the trophoblast and stroma cells surrounding the blood vessels within chorionic villi on day 13 and 15. The expression pattern of PlGF mRNA in rat placenta during pregnancy demonstrates that PlGF plays a functional role for placental growth and fetal development during mid-late pregnancy.
The full ORF of rat PlGF (Met1-Leu158) was cloned from total RNA of rat sinusoidal endothelial cells using standard protocols. The native protein expressed in insect cells starts with Ala24.

References

1. Osol G et al, Am J Physiol Heart Circ Physiol 294, 2008
2. Choi WS et al, J Vet Sci 6(3), 2005
3. Koh PO et al, J Vet Med Sci 69(9), 2007
4. Torry RJ et al, J Heart Lung Transplant 28(2), 2009
5. Sands M et al, Respir Res 12, 2011

Sequence

ALSAGNNSTEMEVVPFNEVWGRSYCRPMEKLVYIADEHPNE
VSHIFSPSCVLLSRCSGCCGDEGLHCVALKTANITMQILKI
PPNRDPHSYVEMTFSQDVLCECRPILETTKAERRKTKGKRK
QSKTPQTEEPHL

Database References

Protein RefSeq:	NP_446047.1
Uniprot ID:	Q63434
mRNA RefSeq:	NM_053595

Product Specifications

Expressed in	Insect cells
Purity	> 95% by SDS-PAGE & silver stain
Buffer	25 mM Tris, pH 8.5
Stabilizer	None
Formulation	freeze dried
Length (aa):	135
MW:	15,14 kDa
Result by N-terminal sequencing	ALSAGNNSTEMEV

Stability: The lyophilized rat PIGF, though stable at room temperature, is best stored in working aliquots at –20°C to –70°C.

Reconstitution: The rat PlGF is supplied in lyophilized form and can be reconstituted with 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 rat PlGF can bind to immobilized rh-sFlt-1 (100ng/well) with a linear range at 0.1 - 5ng/mL.

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Handling/Applications

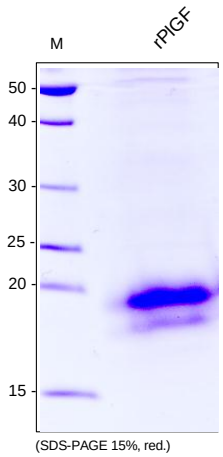

Fig. 1: SDS-PAGE analysis of recombinant rat PlGF. Sample was loaded in 15% SDS-polyacrylamide gel under reducing conditions and stained with Coomassie stain.

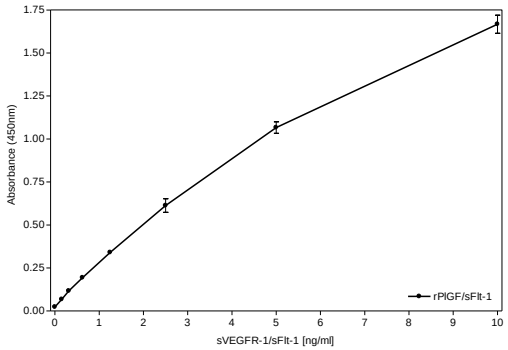

Fig. 2: Functional ELISA for recombinant rat PlGF produced in insect cells. A 96-well ELISA plate was coated with rrPlGF [100µl/well; 0,5µg/ml]. Increasing concentrations of recombinant human soluble sFlt-1 were added. Detection was performed using a biotinylated monoclonal anti-human VEGFR-1 antibody. As a control recombinant sKDR was used. There was no binding signal detectable.

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