



# Recombinant Human Vascular Endothelial Growth Factor<sub>121</sub>

20131114BB



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

Cat.-no:	300-031
Size:	5 µg
Lot. No.:	According to product label
Country of origin:	Germany

## Scientific Background

Gene:	<i>vegf</i>
Synonyms:	VEGF-A, VPF

Human Vascular Endothelial Growth Factor<sub>121</sub> (VEGF<sub>121</sub>), a 18kDa protein consisting of 121 amino acid residues is produced as a homodimer. VEGF is a polypeptide growth factor and a member of the platelet-derived growth factor family. It is a specific mitogen for vascular endothelial cells and a strong angiogenic factor in vivo. Two high-affinity tyrosine kinase receptors for VEGF<sub>165</sub> have been identified, VEGFR-1 (FLT-1), and VEGFR-2 (KDR). Consistent with the endothelial cell-specific action of VEGF<sub>165</sub>, expression of both receptor genes has been found predominantly but not exclusively on endothelial cells. Expression of VEGFR-1 was also found on human monocytes, neutrophils (PMNs), bovine brain pericytes and villous and extra villous trophoblast. In addition to its action as a mitogen it is a potent vascular permeability factor (VPF) in vivo. VEGF<sub>165</sub> is also a chemo attractant molecule for monocytes and endothelial cells. 5 different proteins are generated by differential splicing: VEGF<sub>121</sub>, VEGF<sub>145</sub>, VEGF<sub>165</sub>, VEGF<sub>189</sub> and VEGF<sub>206</sub>. The most abundant form is VEGF<sub>165</sub>. Whereas VEGF<sub>121</sub> and VEGF<sub>165</sub> are secreted proteins, VEGF<sub>145</sub>, VEGF<sub>189</sub> and VEGF<sub>206</sub> are strongly cell-associated. The isoforms VEGF<sub>145</sub>, VEGF<sub>165</sub> and VEGF<sub>189</sub> bind to heparin with high affinity. VEGF<sub>165</sub> is apparently a homo-dimer, but preparations of VEGF<sub>165</sub> show some heterogeneity on SDS gels, depending on the secretion of different glycosylation patterns. All dimeric forms have similar biological activities but their bioavailability is very different. There is good evidence that different cells and tissues express different VEGF isoforms. The other members of this increasing growth factor family are VEGF-B, -C, -D and -E. Another member is the Placenta growth factor PlGF.

## References

1. Breier et al., Dev 114:521, 1992
2. Fiebig et al., Eur J Biochem 211:19, 1993
3. Flamme et al., Dev Biol 162:699, 1995
4. Kremer et al., Cancer Res 57:3852, 1997

## Sequence

APMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVDIFQEYDPDEIEYIFKPSCV  
PLMRCGGCCNDEGLECVPTESNITMQIMRIKPHQGQHI GEMSFLOHNCCEC  
RPKKDRARQEKCDKPRR

## Database References

Protein RefSeq:	NP_001165099
Uniprot ID:	P15692-4
mRNA RefSeq:	NM_001171626

## Product Specifications

Expressed in	Insect cells
Purity	> 95% by SDS-PAGE & silver stain
Buffer	50 mM acetic acid
Stabilizer	None
Formulation	lyophilized
Length (aa):	121
MW:	36 kDa
Result by N-terminal sequencing	APMAEGG

**Stability:** Lyophilized samples are stable for greater than six months at -20°C to -70°C. Reconstituted VEGF<sub>121</sub> should be stored in working aliquots at -20°C.

**Reconstitution:** The lyophilized VEGF<sub>121</sub> should be reconstituted in 50 mM acetic acid to a concentration not lower than 50 µg/ml. For long term storage we recommend to add at least 0.1% human or bovine serum albumin.



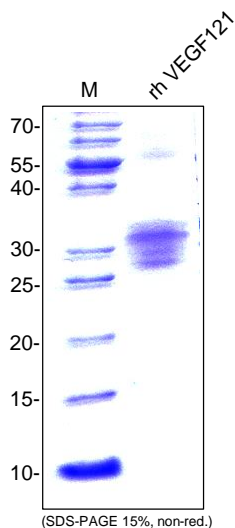
**AVOID REPEATED FREEZE AND THAW CYCLES!**

**Biological Activity:** Measured in a cell proliferation assay using primary HUVECs. The ED<sub>50</sub> for this effect is typically 2 - 10ng/mL.



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## Handling/Application



**Fig. 1:** SDS-PAGE analysis of recombinant human VEGF<sub>121</sub>. Sample was loaded in 15% SDS-polyacrylamide gel under non-reducing condition and stained with Coomassie blue.