



# Recombinant Human VEGF<sub>165</sub>-Biotin

20150804BB



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

<b>Cat.-no:</b>	<b>300-066Bi</b>
<b>Size:</b>	25 µg
<b>Lot. No.:</b>	According to product label
<b>Country of origin:</b>	Germany

## Scientific Background

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

Human Vascular Endothelial Growth Factor VEGF<sub>165</sub>, a 23kDa protein consisting of 165 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 PIGF.

## 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

APMAEGGQNHHEVVKFMDVYQRSYCHPIETLVDIFQEYPDEIEYIFKPCSV  
PLMRCGGCCNDEGLECVPTESNITMQIMRIKPHQGQHI GEMSFLOHNKCEC  
RPKDRARQENPCGPCSEERRKHLFVQDPQTCKCCKNTDSRCKARQLELNER  
TCRCDKPRR

## Database References

<b>Protein RefSeq:</b>	NP 001165097
<b>Uniprot ID:</b>	P15692-4
<b>mRNA RefSeq:</b>	NM 001171626

## Product Specifications

<b>Expressed in</b>	E.coli
<b>Purity</b>	> 95% by SDS-PAGE & Coomassie stain
<b>Endotoxin level</b>	< 0.1ng per µg of human VEGF <sub>165</sub>
<b>Buffer</b>	50mM acetic acid
<b>Stabilizer</b>	None
<b>Formulation</b>	lyophilized
<b>Length (aa):</b>	165
<b>MW:</b>	38,2 kDa
<b>Result by N-terminal sequencing</b>	APMAEGG
<b>Conjugation</b>	Biotin

**Stability:** Lyophilized samples are stable for greater than six months at -20°C to -70°C. Reconstituted VEGF<sub>165</sub>-Biotin should be stored in working aliquots at -20°C.

**Reconstitution:** The lyophilized VEGF<sub>165</sub>-Biotin should be reconstituted in water to a concentration not lower than 50 µg/ml.



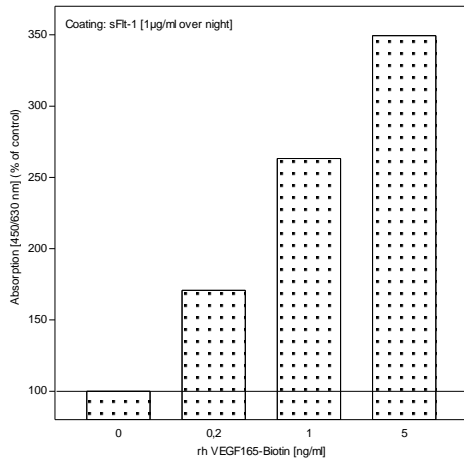
**AVOID REPEATED FREEZE AND THAW CYCLES!**

**Biological Activity:** Tested in a BioLISA and a functional ELISA.

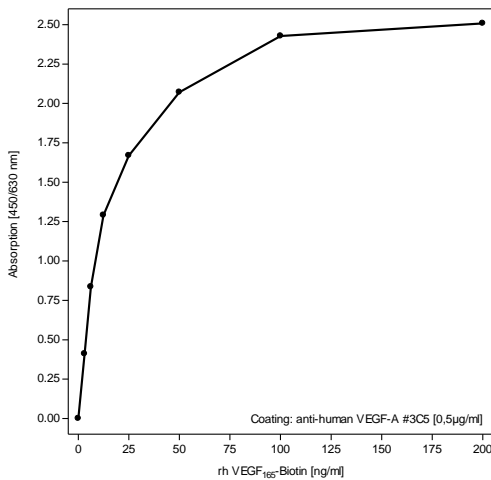


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### Handling/Application



**Fig. 1:** Binding of Biotinylated VEGF<sub>165</sub> [Cat# 300-065Bi] to human soluble VEGFR-1/Flt-1 [Cat# S01-010] in a BioLISA. Recombinant human soluble VEGFR-1/Flt-1 was coated with 1µg/ml (100µl/well) over night at 4°C and Biotinylated VEGF<sub>165</sub> was added.



**Fig. 2:** Binding of Biotinylated VEGF<sub>165</sub> [Cat# 300-065Bi] to anti-human VEGF-A #3C5 [Cat# 101-M56] in a functional ELISA. Anti-human VEGF-A antibody was coated with 0,5µg/ml (100µl/well) and Biotinylated VEGF<sub>165</sub> was added starting with 3.125 ng/ml to 200 ng/ml.