



Recombinant Human Vascular Endothelial Growth Factor₂₀₆

20180216BB



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	300-099
Size:	20 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

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

Vascular endothelial growth factor-A (VEGF-A) mRNA undergoes alternative splicing events that generate several different homodimeric isoforms, e.g. VEGF₁₂₁, VEGF₁₄₅, VEGF₁₆₅, VEGF₁₈₉, and VEGF₂₀₆. VEGF₁₂₁ is a non-heparin-binding acidic protein, which is freely diffusible. The longer forms, VEGF₁₈₉ or VEGF₂₀₆, are highly basic proteins tightly bound to extracellular heparin-containing proteoglycans. VEGF₁₆₅ has intermediate properties. VEGF₁₆₅ was observed largely in Golgi apparatus-like structures. Immunogold labeling of cells expressing VEGF₁₈₉ or VEGF₂₀₆ revealed that the staining was localized to the subepithelial ECM. VEGF associated with the ECM was bioactive, because endothelial cells cultured on ECM derived from cells expressing VEGF₁₈₉ or VEGF₂₀₆ were markedly stimulated to proliferate. In addition, ECM-bound VEGF can be released into a soluble and bioactive form by heparin or plasmin. ECM-bound VEGF₁₈₉ and VEGF₂₀₆ have molecular masses consistent with the intact polypeptides. The ECM may represent an important source of VEGF and angiogenic potential. The isoforms VEGF₁₄₅, VEGF₁₆₅ and VEGF₁₈₉ bind to heparin with high affinity, the affinity of VEGF₂₀₆ is much weaker. All dimeric forms have similar biological activities but their bioavailability is very different. However so far there are only a few data about the biological activities of VEGF₂₀₆.

References

1. Park JE et al, Mol Biol Cell 4:1317, 1993
2. Grützkau A et al, Mol Biol Cell 9:875, 1998
3. Breier et al., Dev 114:521, 1992
4. Fiebiger et al., Eur J Biochem 211:19, 1993
5. Flamme et al., Dev Biol 162:699, 1995
6. Kremer et al., Cancer Res 57:3852, 1997

Sequence

APMAEGGQNHHEVVKFMDVYQRSYCHPIETLVDIFQEYDPDEIEYIFKPCSV
PLMRCGGCCNDEGLECVPTESNITMQIMRIKPHQGGHIGEMSFLOHNKCEC
RPKKDRARQEKKSVRGKGGKQKRKRKRSYKSWSVYVGARCCLMPWSLPGPH
PCGFCSEERRKHLFVQDPQTKCKSCSKNTDSRCKARQLELNERTCRCDKPRR

Database References

Protein RefSeq:	NP_001165095
Uniprot ID:	P15692-1
mRNA RefSeq:	NM_001171624

Product Specifications

Expressed in	E.coli
Purity	≥ 75% by SDS-PAGE & Coomassie stain
Buffer	50 mM acetic acid
Stabilizer	None
Formulation	lyophilized
Length (aa):	206
MW:	~47 kDa (Dimer)
Result by N-terminal sequencing	APMAEGG

Stability: The lyophilized protein is stable for a few weeks at room temperature, but best stored at -20°C. Reconstituted VEGF₂₀₆ should be stored in working aliquots at -20°C. Avoid repeated freeze-thaw cycles.

Reconstitution: Centrifuge the vial prior to opening! The lyophilized VEGF₂₀₆ should be reconstituted in 50mM 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: The ED₅₀ for stimulation of cell proliferation in human dermal lymphatic endothelial cells (HDLEC) by VEGF₂₀₆ has been determined to be in the range of 5-15 ng/ml.



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Handling/Application

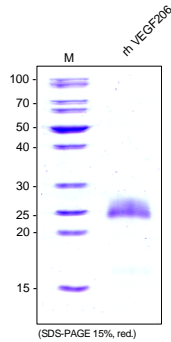


Fig. 1: SDS-PAGE analysis of recombinant human VEGF₂₀₆ produced in *E. coli*. Sample was loaded under reducing conditions in 15% SDS-polyacrylamide gel and stained with Coomassie blue.

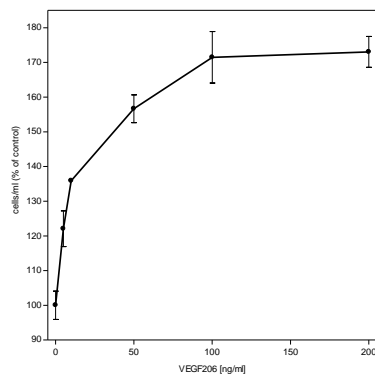


Fig. 2: VEGF₂₀₆-induced proliferation of primary human dermal lymphatic endothelial cells (HDLEC). HDLECs were stimulated with increasing amounts of human VEGF₂₀₆.