



Recombinant Rat Vascular Endothelial Growth Factor₁₂₀



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	R20-063S
Size:	2 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

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

Rat Vascular Endothelial Growth Factor₁₂₀ (VEGF₁₂₀), a 14.1 kDa protein consisting of 120 amino acid residues, is produced as a homodimer. VEGF₁₂₀ 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 VEGF₁₂₀ have been identified, VEGFR-1 (FLT-1), and VEGFR-2 (Flk-1). Consistent with the endothelial cell-specific action of VEGF₁₂₀, 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 extravillous trophoblasts.

In addition to its action as a mitogen it is a potent vascular permeability factor (VPF) in vivo and is also a chemo attractant for monocytes and endothelial cells. At least four different proteins are generated by differential splicing of the mouse VEGF gene: VEGF₁₂₀, VEGF₁₄₄, VEGF₁₆₄ and VEGF₁₈₈. The most abundant form is VEGF₁₆₄. Whereas VEGF₁₂₀, VEGF₁₄₄ and VEGF₁₆₄ are secreted proteins, VEGF₁₈₈ is strongly cell-associated. In addition, the isoforms VEGF₁₆₄ and VEGF₁₈₈ bind to heparin with high affinity. All dimeric forms possess similar biological activities. A related protein of VEGF is placenta growth factor (PlGF) with about 53% homology and VEGF-B with similar biological activities.

The full ORF of native rat VEGF₁₂₀ (Ala27-Arg146) was cloned from total RNA of rat sinusoidal endothelial cells using standard protocols.

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

APTTEGEQKAHEVVKFMDVYQRSYCRPIETLVDIFQEY PDEIEYIFKPSCVPLMRCAGCCNDEALECVPTSESNVTMQIMRIKPHQSQHIGEMSF LQHSRCECRPKKDR TKPEKCDKPRR

Database references

Protein RefSeq:	NP_114024.2.
Uniprot ID:	P16612
mRNA RefSeq:	NM_031836.2

Product Specifications

Expressed in	E.coli
Purity	>95%, by SDS-PAGE and silver stain
Buffer	PBS
Stabilizer	None
Formulation	freeze dried
Length (aa):	120
MW:	14,02
Result by N-terminal sequencing	APTTEGEQKAH

Stability: Lyophilized samples are stable for greater than six months at -20°C to -70°C. Reconstituted VEGF₁₂₀ should be stored in working aliquots at -20°C.

Reconstitution: The lyophilized VEGF₁₂₀ should be reconstituted in ddH₂O to a concentration not lower than 50µg/ml.



AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Determined by the dose-dependent stimulation of the proliferation of human umbilical vein endothelial cells (HUVEC) using a concentration range of 2-10 ng/ml.



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Handling/Applications

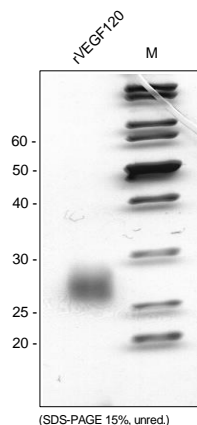


Fig. 1: SDS-PAGE analysis of recombinant rat VEGF₁₂₀. Sample was loaded in 15% SDS-polyacrylamide gel under non-reducing conditions and stained with Silver stain.

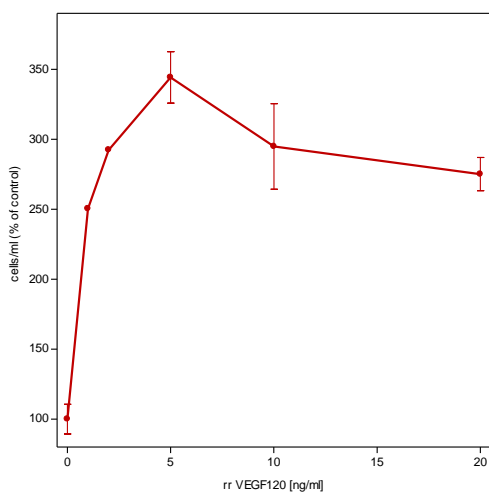


Fig. 2: Dose-dependent stimulation of cell proliferation in primary human umbilical vein endothelial cells (HUVEC) by recombinant rat VEGF₁₂₀. Values are the means (\pm SD) of triplicate determinations and expressed as percentage of control.