



Recombinant Human Soluble VEGFR-1_{D1-3}-His

20160704BB



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	S01-080
Size:	50 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

Gene:	<i>flt1</i>
Synonyms:	Fms-like tyrosine kinase 1, Vascular permeability factor receptor

Recombinant human soluble Vascular Endothelial Growth Factor Receptor-1 domain D1-3 (sVEGFR-1_{D1-3}) is produced as a non-chimeric protein in a monomeric form. The soluble receptor protein contains only the first 3 extracellular domains, which contain all the information necessary for binding of VEGF. The receptor monomers have a mass of approximately 45 kDa containing 327 amino acid residues.

Endothelial cells express three different vascular endothelial growth factor (VEGF) receptors, belonging to the family of receptor tyrosine kinases (RTKs). They are named VEGFR-1 (Flt-1), VEGFR-2 (KDR/Flk-1), VEGFR-3 (Flt-4). Their expression is almost exclusively restricted to endothelial cells, but VEGFR-1 can also be found on monocytes, dendritic cells and on trophoblast cells. The *flt-1* gene was first described in 1990. The receptor contains seven immunoglobulin-like extracellular domains, a single transmembrane region and an intracellular split tyrosine kinase domain. Compared to VEGFR-2 the Flt-1 receptor has a higher affinity for VEGF but a weaker signaling activity. VEGFR-1 thus leads not to proliferation of endothelial cells, but mediates signals for differentiation. Interestingly a naturally occurring soluble variant of VEGFR-1 (sVEGFR-1) was found in HUVE supernatants in 1996, which is generated by alternative splicing of the *flt-1* mRNA. The biological functions of sVEGFR-1 still are not clear, but it seems to be an endogenous regulator of angiogenesis, binding VEGF with the same affinity as the full-length receptor.

References

1. Barleon et al., 1997, J Biol Chem 272:10382-8
2. Röckl et al., 1998, Exp Cell Res, 241: 161-170.

Sequence

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SKLKDPELSLKGQTQHIMQAGQTLHLQCRGEAAHKWSLPPEMVSKESEKRSITK  
SACGRNGKQFCSTLTLNLAQANHTGFYSCYKYLAVPTSKKKETESAIYIFISD  
TGRFFVEMYSEIPEIIHMTGRELVI PCRVTS PNITVTLKFFPLDTLIPDGK  
RIIWDSRKGFIISNATYKEIGLLTCEATVNGHLYKTNLTHRQNTIIDVQI  
STPRPVKLLRGHTLVLNCTATTPLNTRVQMTWSYPDEKNKRASVRRRI DQSN  
SHANIFYSVLTIIDKMQNKDKGLYTCRVRSGPSFKSVNTSVHIYDKAFITRHH  
HHHH
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Database References

Protein RefSeq:	NP_001153392
Uniprot ID:	P17948-2
mRNA RefSeq:	NM_0001159920

Product Specifications

Expressed in	Insect cells
Purity	> 95% by SDS-PAGE & Coomassie Stain
Buffer	Water
Stabilizer	None
Formulation	lyophilized
Length (aa):	316
MW:	~45 kDa (Monomer)
Result by N-terminal sequencing	SKLKD

Stability: Lyophilized samples are stable for greater than six months at -20°C to -70°C. Reconstituted sVEGFR-1_{D1-3} should be stored in working aliquots at -20°C.

Reconstitution: The lyophilized sVEGFR-1_{D1-3} is soluble in water and most aqueous buffers and should be reconstituted in water to a concentration not lower than 0.1mg/ml.



AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Measured by its ability to inhibit the VEGF₁₆₅-induced proliferation in human umbilical vein endothelial (HUVE) cells.



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Handling/Application

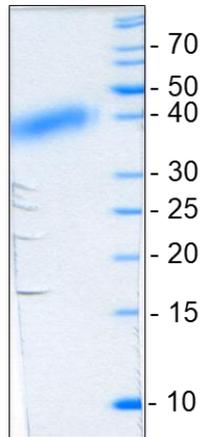


Fig. 1: SDS-PAGE analysis of recombinant human soluble VEGFR-1_{D1-3}-His produced in insect cells. Sample was loaded in 12% SDS-polyacrylamide gel under reducing condition and stained with Coomassie blue.

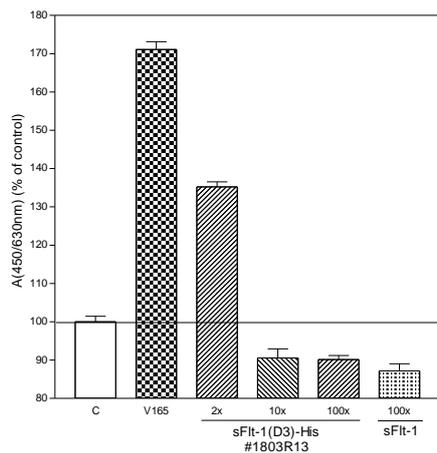


Fig. 2: Inhibition of the VEGF₁₆₅-induced proliferation of HUVECs by recombinant human sFlt-1(D3)-His. The naturally occurring isoform sFlt-1 was used as control. HUVECs were stimulated with 10 ng/ml VEGF₁₆₅.