Recombinant Human Soluble VEGFR-1_{D1-5}

20190110DS

FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	**S01-011**
Size:	5 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

Gene:	*flt1*
Synonyms:	Fms-like tyrosine kinase 1, Vascular permeability factor receptor

Recombinat human soluble Vascular Endothelial Growth Factor Receptor-1 domain D1-5 (sVEGFR-1_{D1-5}) is a 72 kDa protein containing amino acid residues. The baculovirus generated, recombinant human sVEGFR-1 is produced as a non-chimeric protein in a monomeric form. The soluble receptor protein contains only the first 5 extracellular domains, which contain all the information necessary for high affinity ligand binding. The receptor monomers have a mass of approximately 70kDa.
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 occuring 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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SKLKDPELSLKGTQHIMQAGQTLHLQCRGEAAHKWSLPEMVSKESERLSITK
SACGRNGKQFCSTLTLNTAQANHTGFYSCKYLAVPTSKKKETESAIYIFISD
TGRPFVEMYSEIPEIIHMTEGRELVIPCRVTSPNITVTLKKFPLDTLIPDGK
RIIWDSRKGFIISNATYKEIGLLTCEATVNGHLYKTNYLTHRQTNTIIDVQI
STPRPVKLLRGHTLVLNCTATTPLNTRVQMTWSYPDEKNKRASVRRRIDQSN
SHANIFYSVLTIDKMQNKDKGLYTCRVRSGPSFKSVNTSVHIYDKAFITVKH
RKQQVLETVAGKRSYRLSMKVKAFPSPEVVWLKDGLPATEKSARYLTRGYSL
IIKDVTEEDAGNYTILLSIKQSNVFKNLTATLIVNVKPQIYEKAVSSFPDPA
LYPLGSRQILTCTAYGIPQPTIKWFWHPCNHNHSEARCDFCSNNEESFILDA
DSNMGNRIESITQRMAIIEGKNKMASTLVVADSRISGIYICIASNKVGTVGR
NISFYITDVPNGFHVN
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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	> 90% by SDS-PAGE
Buffer	PBS
Stabilizer	None
Formulation	lyophilized
Length (aa):	536
MW:	70 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_{D1-5} should be stored in working aliquots at -70°C.

Reconstitution: The lyophilized sVEGFR-1_{D1-5} is soluble in water and most aqueous buffers and should be reconstituted in PBS to a concentration not lower than 100 µg/ml.

AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: The activity of sVEGFR-1_{D1-5} was determined by its ability to inhibit the VEGF-A-induced proliferation of HUVECs.

ReliaTech GmbH
Phone: +49 (0)5331 8586 987 • Fax: +49 (0)5331 8586 989 • E-mail: orders@reliatech.de • web: www.reliatech.de
Location: Lindener Str. 15, 38300 Wolfenbüttel, Germany

Recombinant Human Soluble VEGFR-1_{D1-5}

Handling/Application

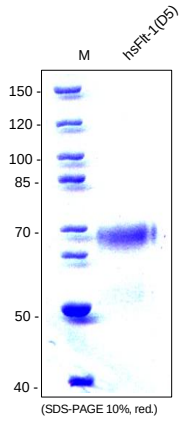

Fig. 1: SDS-PAGE analysis of recombinant human soluble VEGFR-1_{D1-5} produced in insect cells. Sample was loaded in 10% SDS-polyacrylamide gel under reducing condition and stained with Silver stain.

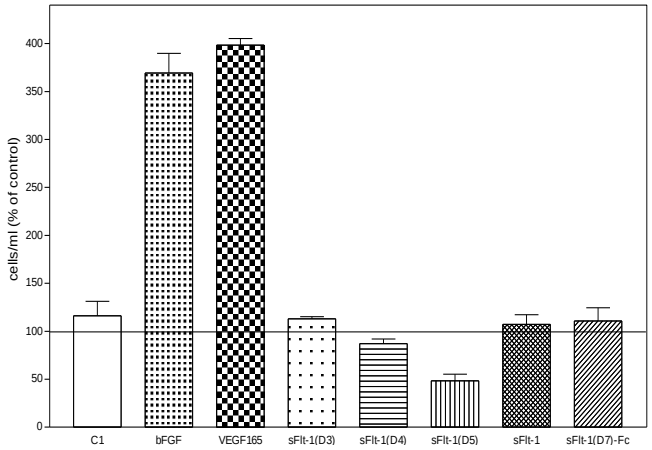

Figure 2. Inhibition of the $VEGF_{165}$-induced proliferation of HUVE cells by recombinant human endogenous sFlt-1 and sFlt-1 constructs. HUVECs were stimulated with 10 ng/ml $VEGF_{165}$, the soluble receptors were added with a 100X excess.

ReliaTech GmbH
Phone: +49 (0)5331 8586 987 • Fax: +49 (0)5331 8586 989 • E-mail: orders@reliatech.de • web: www.reliatech.de
Location: Lindener Str. 15, 38300 Wolfenbüttel, Germany