Recombinant Human Endogenous Soluble VEGFR-1/Flt-1

20181206DS

FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	**S01-009**
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

Recombinant human soluble Vascular Endothelial Growth Factor Receptor-1 (sVEGFR-1) is the naturally occurring form and was cloned from total RNA of human umbilical vein endothelial cells.
The recombinant mature sVEGFR-1 is a glycosylated monomeric protein with a mass of approximately 96kDa. The soluble receptor protein consists of the first 6 extracellular domains (Met1-His688) containing the unique 31 amino acids residues at the C-terminus.
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), and 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 HUVEC 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

```
SKLKDPELSLKGTQHIMQAGQTLHLQCRGEAAHKWSLPEMVSKESERLSITK
SACGRNGKQFCSTLTLNTAQANHTGFYSCKYLAVPTSKKKETESAIYIFISD
TGRPFVEMYSEIPEIIHMTEGRELVIPCRVTSPNITVTLKKFPLDTLIPDGK
RIIWDSRKGFIISNATYKEIGLLTCEATVNGHLYKTNYLTHRQTNTIIDVQI
STPRPVKLLRGHTLVLNCTATTPLNTRVQMTWSYPDEKNKRASVRRRIDQSN
SHANIFYSVLTIDKMQNKDKGLYTCRVRSGPSFKSVNTSVHIYDKAFITVKH
RKQQVLETVAGKRSYRLSMKVKAFPSPEVVWLKDGLPATEKSARYLTRGYSL
IIKDVTEEDAGNYTILLSIKQSNVFKNLTATLIVNVKPQIYEKAVSSFPDPA
LYPLGSRQILTCTAYGIPQPTIKWFWHPCNHNHSEARCDFCSNNEESFILDA
DSNMGNRIESITQRMAIIEGKNKMASTLVVADSRISGIYICIASNKVGTVGR
NISFYITDVPNGFHVNLEKMPTEGEDLKLSCTVNKFLYRDVTWILLRTVNNR
TMHYSISKQKMAITKEHSITLNLTIMNVSLQDSGTYACRARNVYTGEEILQK
KEITIRGEHCNKKAVFSRISKFKSTRNDCTTQSNVKH
```

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
Buffer	PBS
Stabilizer	None
Formulation	lyophilized
Length (aa):	661
MW:	96 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 should be stored in working aliquots at -70°C.

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

AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: The activity of sVEGFR-1 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 Endogenous Soluble VEGFR-1/Flt-1

Handling/Application

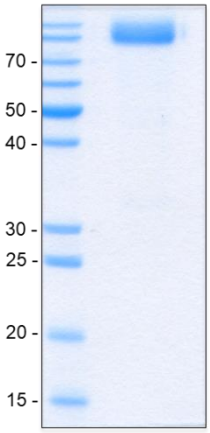

Fig. 1: SDS-PAGE analysis of recombinant human soluble VEGFR-1 produced in insect cells. Sample was loaded in 15% SDS-polyacrylamide gel under reducing condition and stained with Coomassie stain.

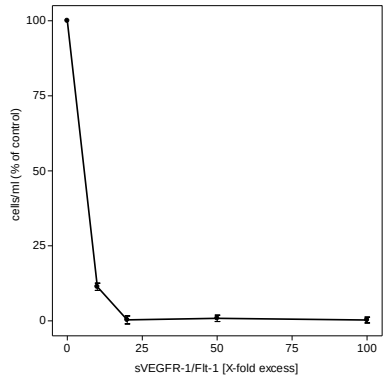

Fig. 2: Inhibition of the $VEGF_{165}$-induced proliferation in HUVECs by soluble VEGFR-1/Flt-1. $VEGF_{165}$ (10ng/ml) was preincubated with increasing amounts of sVEGFR-1/Flt-1 for 1h and then added to the cells.

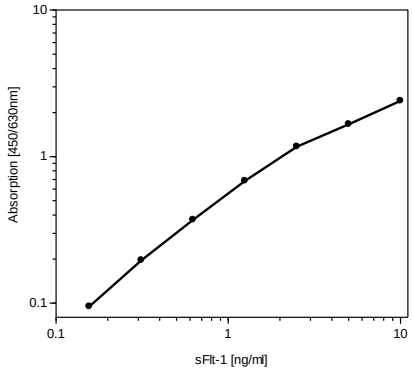

Figure 3. FLT-1 Sandwich-ELISA using recombinant human soluble FLT-1 as standard [Cat# S01-010]. Mouse anti-human FLT-1 #EWI (Cat# 101-M30) was used as capture antibody, Biotinylated rabbit anti-human FLT-1 (Cat# 102-PABi20) was used for detection.

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