# Recombinant Human Soluble VEGFR-$1_{D1-3}$

20160704BB

FOR RESEARCH ONLY! NOT FOR HUMAN USE!

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|---|---|
| **Cat.-no:** | **S01-016** |
| Size: | 20 µg |
| Lot. No.: | According to product label |
| Country of origin: | Germany |

## Scientific Background

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

Recombinant human soluble Vascular Endothelial Growth Factor Receptor-1 domain D1-3 (sVEGFR-$1D_{1-3}$) 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 splited 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

```
SKLKDPELSLKGTQHIMQAGQTLHLQCRGEAAHKWSLPEMVSKESERLSITK
SACGRNGKQFCSTLTLNTAQANHTGFYSCKYLAVPTSKKKETESAIYIFISD
TGRPFVEMYSEIPEIIHMTEGRELVIPCRVTSPNITVTLKKFPLDTLIPDGK
RIIWDSRKGFIISNATYKEIGLLTCEATVNGHLYKTNYLTHRQTNTIIDVQI
STPRPVKLLRGHTLVLNCTATTPLNTRVQMTWSYPDEKNKRASVRRRIDQSN
SHANIFYSVLTIDKMQNKDKGLYTCRVRSGPSFKSVNTSVHIYDKAFITVKH
RKQQVLETVAGKRSY
```

### Database References

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

## Product Specifications

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|---|---|
| **Expressed in** | Insect cells |
| **Purity** | ≤ 90% by SDS-PAGE & Coomassie Stain |
| **Buffer** | PBS |
| **Stabilizer** | None |
| **Formulation** | lyophilized |
| **Length (aa):** | 327 |
| **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 $VEGF_{165}$-induced proliferation in human umbilical vein endothelial (HUVE) cells.



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# Recombinant Human Soluble VEGFR-$1_{D1-3}$

## Handling/Application

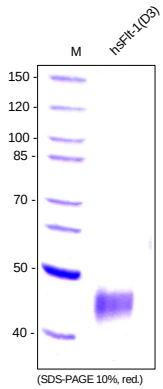


**Fig. 1**: SDS-PAGE analysis of recombinant human soluble VEGFR-$1_{D1-3}$ produced in insect cells. Sample was loaded in 10% SDS-polyacrylamide gel under reducing condition and stained with Coomassie blue.

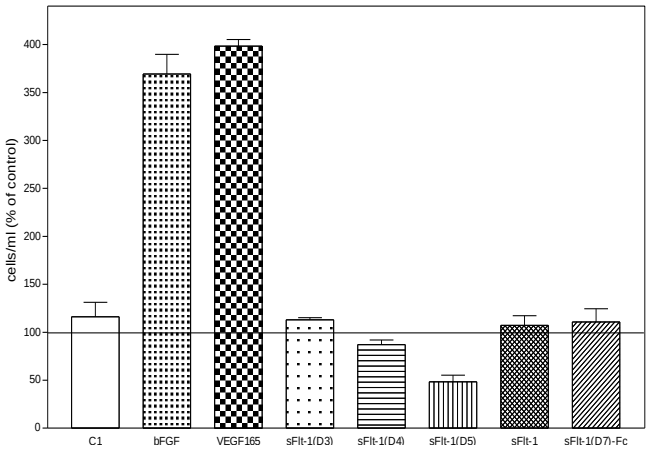


**Fig. 2:** Inhibition of the $VEGF_{165}$-induced proliferation of HUVECs by recombinant human endogenous sFlt-1 and sFlt-1 constructs. HUVECs were stimulated with 10 ng/ml $VEGF_{165}$, the soluble receptors were added with a 100X excess.



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