Recombinant Human Soluble VEGFR-1_{D7}/Fc Chimera

FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	**SFC-005**
Size:	10 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_{D1-7}) was fused with the Fc part of human IgG_1. The recombinant mature sVEGFR-1_{D1-7}/Fc is a disulfide-linked homodimeric protein. The sVEGFR-1_{D1-7}/Fc monomers have a mass of approximately 130kDa. The soluble receptor protein consists of all 7 extracellular domains (Met1-Thr751), which contain all the information necessary for high affinity ligand binding. 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.
All VEGF-receptors have seven immunoglobulin-like extracellular domains, a single transmembrane region and an intracellular split tyrosine kinase domain. VEGFR-2 has a lower affinity for VEGF than the Flt-1 receptor, but a higher signaling activity.
Mitogenic activity in endothelial cells is mainly mediated by VEGFR-2 leading to their proliferation. Differential splicing of the *flt-1* gene leads to the formation of a secreted, soluble variant of VEGFR-1 (sVEGFR-1). No naturally occurring, secreted forms of VEGFR-2 have so far been reported. The binding of $VEGF_{165}$ to VEGFR-2 is dependent on heparin.

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
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DSNMGNRIESITQRMAIIEGKNKMASTLVVADSRISGIYICIASNKVGTVGR
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KEITIRDQEAPYLLRNLSDHTVAISSSTTLDCHANGVPEPQITWFKNNHKIQ
QEPGIILGPGSSTLFIERVTEEDEGVYHCKATNQKGSVESSAYLTVQGTRSD
KTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEV
KFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSN
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EALHNHYTQKSLSLSPGK
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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):	954
MW:	130 kDa (Monomer)

Stability: Lyophilized samples are stable for greater than six months at –20°C to –70°C. Reconstituted sVEGFR-1/Fc should be stored in working aliquots at -20°C.

Reconstitution: The lyophilized sVEGFR-1/Fc should be reconstituted in PBS or medium to a concentration not lower than 50µg/ml.

AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: The activity of sVEGFR-1/Fc was determined by its ability to inhibit the VEGF-dependent proliferation of human umbilical vein endothelial cells.

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Recombinant Human Soluble VEGFR-1_{D7}/Fc Chimera

Handling/Application

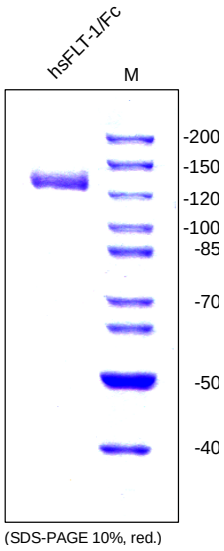

Fig. 1: SDS-PAGE analysis of recombinant human soluble VEGFR-1/Fc produced in insect cells. Sample was loaded in 10% SDS-polyacrylamide gel under reducing condition and stained with Coomassie blue.

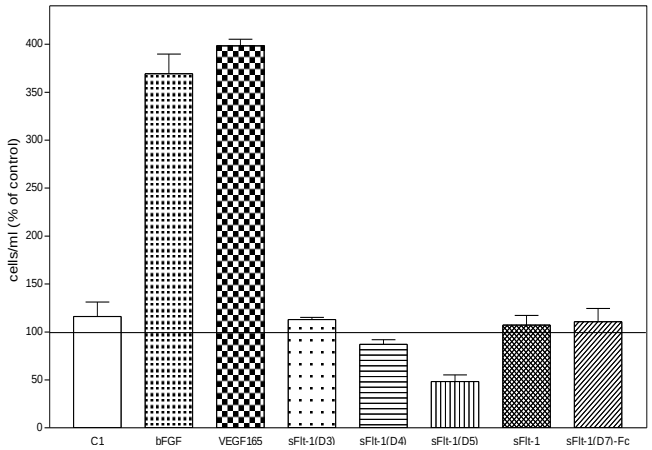

Figure 2. Inhibition of the $VEGF_{165}$-induced proliferation of HUVE cells by recombinant human endogenous sFlt-1 and sFlt-1 constructs. HUVECs were stimulated with 10 ng/ml $VEGF_{165}$, the soluble receptors were added with a 100X excess.

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