



# Recombinant Human Soluble VEGFR-2<sub>D1-7</sub>/KDR

20140321BB



**FOR RESEARCH ONLY! NOT FOR HUMAN USE!**

|                           |                            |
|---------------------------|----------------------------|
| <b>Cat.-no:</b>           | <b>S01-002</b>             |
| <b>Size:</b>              | 50 µg                      |
| <b>Lot. No.:</b>          | According to product label |
| <b>Country of origin:</b> | Germany                    |

## Scientific Background

|                  |   |
|------------------|---|
| <b>Gene:</b>     | <i>Kdr, Flk-1</i>   |
| <b>Synonyms:</b> | Vascular endothelial growth factor receptor 2, Protein-tyrosine kinase receptor flk-1 |

Recombinant Human soluble Endothelial Growth Factor Receptor-2 (sKDR<sub>D1-7</sub>) is produced as a non-chimeric protein in a monomeric form. The soluble receptor protein consists of all 7 extracellular domains, which contain all the information necessary for high affinity ligand binding. The receptor monomers have a mass of approximately 116kDa.

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.

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. The binding of VEGF<sub>165</sub> to VEGFR-2 is dependent on heparin.

## References

1. Röckl et al., 1998, Exp Cell Res, 241: 161-170

## Sequence

```
ASVGLPSVSLDLPLRLSIQKDILTIKANTLQITCRGQRDLDLWLPNNQSGSE
QRVEVTECSDFLCKTLTIKPKVIGNDTGAYKCFYRETDLASVIYVVQDYRS
PFIASVSDQHGVVYITENKNTVVI PCLGSI SNLNVSLCARYPEKRFVDPGN
RISWDSKKGFTIPSYMISYAGMVCFEAKINDESYQSIMYIVVVGYRIYDVV
LSPSHGIELSVGEKLVNCTARTELVNGIDFNWEYPSKHKHKLNNRDLKT
QSGSEMKKFLSTLTIDGVTRSDQGLYTCAASSGLMTKKNSTFVRVHEKPFVA
FGSGMESLVEATVGERVRIKAYLGYPPPEIKWYKNGIPLESNHTIKAGHVL
TIMEVSRDGTGNVYVILTNPISKEKQSHVVSLLVYVPPQIGEKSLISPVDSY
QYGTQTTLTCTVYAI PPHIHWYQLEEECANEPSQAVSVTNPYPCEEWRS
VEDFQGGNKIEVNKNQFALIEGKNKTVSTLVIQANVSALYKCEAVNKVGRG
ERVISFHVTRGPEITLQPDMPTEQESVSLWCTADRSTFENLWYKLGPPQL
PIHVGELPTPVCKNLDLWKLNATMFSNSTNDILIMELKNASLQDQGDYVCL
AQDRKTKRKHCVVRQLTVLERVAPTITGNLENQTTISIGESIEVSTASGNPP
PQIMWFKDNETLVEDSGIVLKDGNRNLITRRVRKEDEGLYTCQACSVLGCAC
VEAFFIIEGA
```

## Database References

|                        |             |
|------------------------|-------------|
| <b>Protein RefSeq:</b> | NP_002244.1 |
| <b>Uniprot ID:</b>     | P35968      |
| <b>mRNA RefSeq:</b>    | NM_002253.2 |

## Product Specifications

|  |                                |
|--|--------------------------------|
| <b>Expressed in</b>                    | Insect cells                   |
| <b>Purity</b>                          | > 95% by SDS-PAGE              |
| <b>Buffer</b>                          | 25 mM MES, 100 mM NaCl; pH 5.5 |
| <b>Stabilizer</b>                      | None                           |
| <b>Formulation</b>                     | lyophilized                    |
| <b>Length (aa):</b>                    | 738                            |
| <b>MW:</b>                             | 116 kDa (Monomer)              |
| <b>Result by N-terminal sequencing</b> | ASVGLPSVSL                     |

**Stability:** The material is stable for greater than six months at -20°C to -70°C. After the first thawing it is recommended to aliquote the material, because repeated freeze-thaw cycles will decrease the activity. Store at 4°C not longer than 2 days.

**Reconstitution:** The lyophilized human sKDR<sub>D1-7</sub> is soluble in water and most aqueous buffers; it should be reconstituted in water or PBS to a concentration of not lower than 100µg/ml.



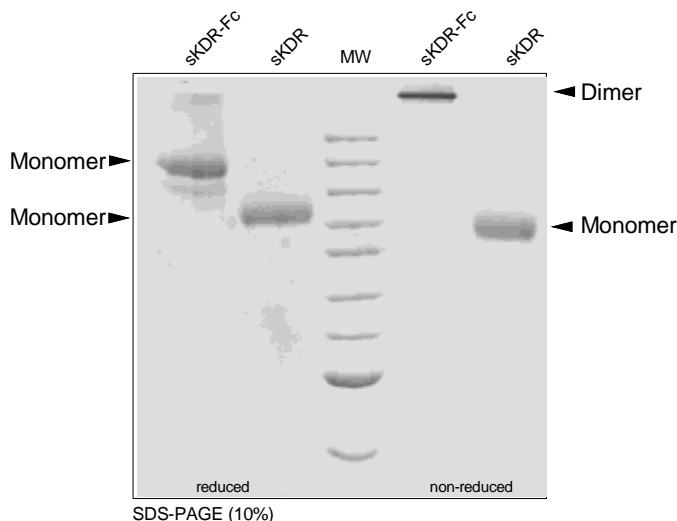
**AVOID REPEATED FREEZE AND THAW CYCLES!**

**Biological Activity:** Measured by its ability to inhibit the VEGF<sub>165</sub>-induced proliferation in human umbilical vein endothelial (HUVE) cells.



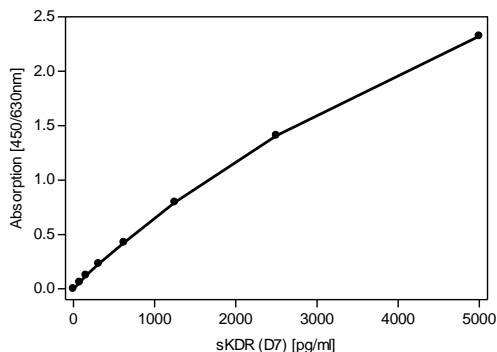
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### Handling/Application



**Fig. 1:** SDS-PAGE analysis of recombinant human soluble KDR(D7) and sKDR(D7)-Fc derived from insect cells. Samples were loaded in 10% SDS-polyacrylamide gel under reducing and non-reducing conditions and stained with Silver stain.

As you can see sKDR (D7)-Fc is able to form dimers whereas sKDR (D7) is not.



**Fig. 2:** VEGFR-2/KDR Sandwich-ELISA using soluble KDR (D7) [Cat# S01-002] as standard. Mouse anti-human VEGFR-2 [Cat# 101-M32] was used as capture antibody, Biotinylated rabbit anti-human VEGFR-2 [Cat# 102-PABi18] was used for detection.