

## Recombinant Human VEGFA protein (HPLC-verified)

Cat. No. VEGFA-86H Lot. No. (See product label)

### SPECIFICATION

<b>Product Overview</b>	Recombinant Human VEGFA protein (Ala27-Arg191)(HPLC-verified) carries no tag and was expressed in human 293 cells (HEK293).
<b>Species</b>	Human
<b>Source</b>	HEK293
<b>ProteinLength</b>	165
<b>Description</b>	VEGF165 is the most abundant splice variant of VEGF-A. VEGF165 is produced by a number of cells including endothelial cells, macrophages and T cells. VEGF165 is involved in angiogenesis, vascular endothelial cell survival, growth, migration and vascular permeability. VEGF gene expression is induced by hypoxia, inflammatory cytokines and oncogenes. VEGF165 binds to heparan sulfate and is retained on the cell surface and in the extracellular matrix. VEGF165 binds to the receptor tyrosine kinases, VEGFR1 and VEGFR2. VEGF165 is the only splice variant that binds to co-receptors NRP-1 and NRP-2 that function to enhance VEGFR2 signaling. Binding of VEGF165 to VEGFR1 and VEGFR2 leads to activation of the PI3K/AKT, p38 MAPK, FAK and paxillin. VEGF plays a key role in tumor angiogenesis in many cancers.
<b>Form</b>	Lyophilized from 0.22 um filtered solution in PBS, pH7.4, 10% trehalose.
<b>Molecular Mass</b>	The protein has a calculated MW of 19.0 kDa (monomer). As a result of glycosylation, the protein migrates as 24 kDa (monomer) under reducing (R) condition, and 43-50 kDa (homodimer) under non-reducing (NR) condition (SDS-PAGE).

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<b>Endotoxin</b>	Less than 1.0 EU per ug by the LAL method.
<b>Purity</b>	>98% as determined by SDS-PAGE.
<b>Storage</b>	<p>For long term storage, the product should be stored at lyophilized state at -20 centigrade or lower.</p> <p>Please avoid repeated freeze-thaw cycles.</p> <p>This product is stable after storage at:</p> <p>-20 centigrade to -70 centigrade for 12 months in lyophilized state;            -70 centigrade for 3 months under sterile conditions after reconstitution.</p>
<b>Reconstitution</b>	It is recommended that sterile water be added to the vial to prepare a stock solution of 0.2 ug/ul. Centrifuge the vial at 4°C before opening to recover the entire contents.

## GENE INFORMATION

<b>Gene Name</b>	VEGFA
<b>Official Symbol</b>	VEGFA
<b>Synonyms</b>	VEGFA; vascular endothelial growth factor A; vascular endothelial growth factor , VEGF; VEGF A; VPF; vascular permeability factor; VEGF; MVCD1; MGC70609
<b>Gene ID</b>	7422
<b>mRNA Refseq</b>	NM_001025366
<b>Protein Refseq</b>	NP_001020537
<b>MIM</b>	192240

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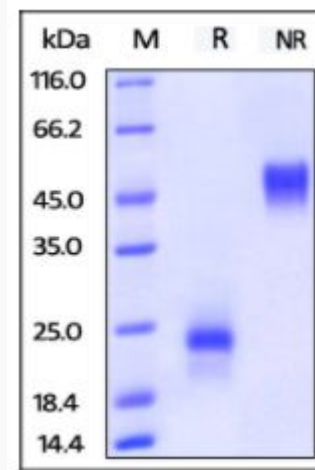
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UniProt ID

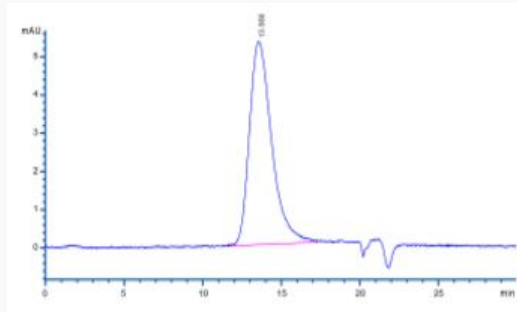
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**SDS-PAGE of  
VEGFA-86H**



Human VEGF165, Tag Free (HPLC-verified) on SDS-PAGE under reducing (R) and non-reducing (NR) conditions. The gel was stained overnight with Coomassie Blue. The purity of the protein is greater than 98%.

**SEC-HPLC of  
VEGFA-86H**



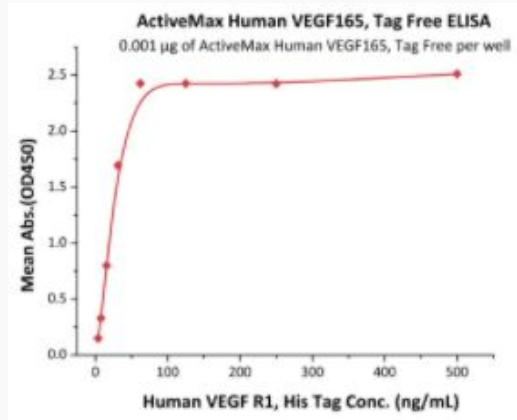
A SEC-HPLC analysis showing 95% of Human VEGF165, Tag Free (HPLC-verified) present as active homodimers.

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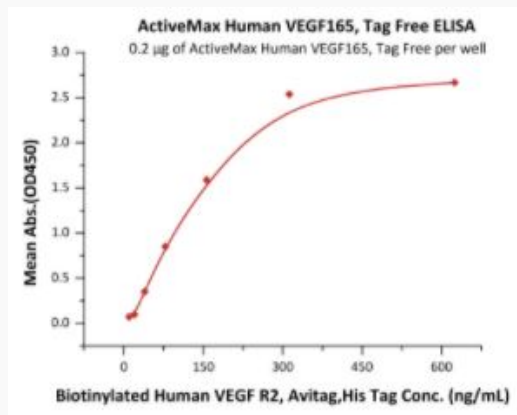
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**Bioactivity-ELISA of  
VEGFA-86H**



Immobilized Human VEGF165, Tag Free (HPLC-verified) at 0.01 µg/mL (100 µL/well) can bind Human VEGFR1, His Tag with a linear range of 4-31 ng/mL (QC tested).

**Bioactivity-ELISA of  
VEGFA-86H**



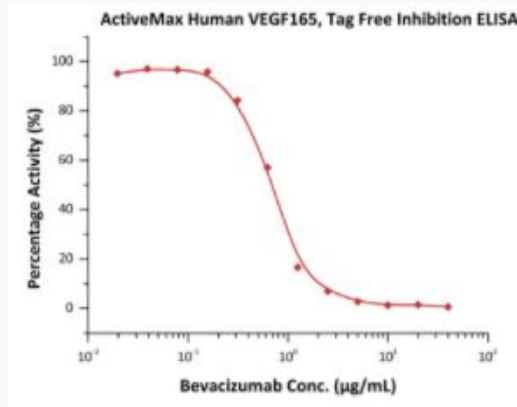
Immobilized Human VEGF165, Tag Free (HPLC-verified) at 2 µg/mL (100 µL/well) can bind Biotinylated Human VEGFR2, Avitag,His Tag with a linear range of 10-156 ng/mL (Routinely tested).

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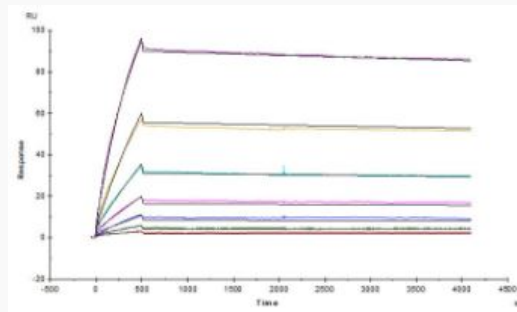
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**Bioactivity-ELISA of  
VEGFA-86H**



Immobilized Human VEGF165, Tag Free (HPLC-verified) at 2 µg/mL (100 µL/well) can bind pre-mixed increasing concentrations of Bevacizumab and 0.5 µg/mL (100 µL/well) Biotinylated Human VEGF R2, Avitag,His Tag with a half maximal inhibitory concentration (IC50) of 0.70 µg/mL (Routinely tested).

**Bioactivity-SPR of  
VEGFA-86H**



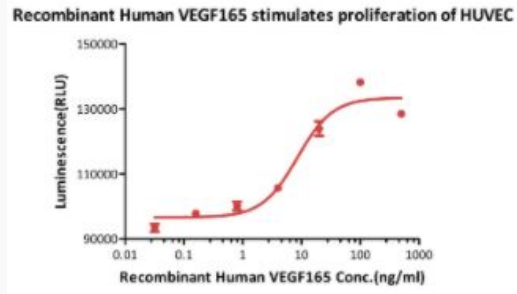
Avastin (Bevacizumab) captured on CM5 chip via ant-human IgG Fc antibodies surface, can bind Human VEGF165, Tag Free (HPLC-verified) with an affinity constant of 0.776 nM as determined in a SPR assay (Routinely tested).

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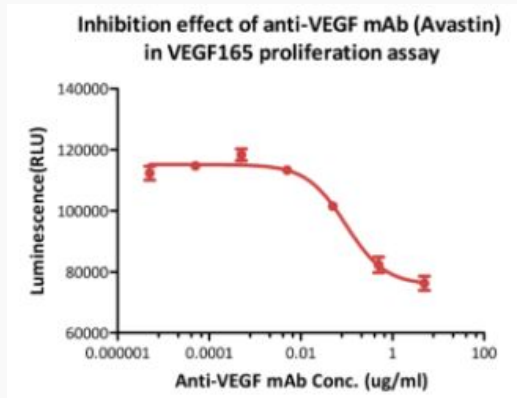
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**Bioactivity-Cell based assay of VEGFA-86H**



Human VEGF165, Tag Free (HPLC-verified) stimulates proliferation of human umbilical vein endothelial cells (HUVEC). The ED50 for this effect is 4.216-9.281 ng/ml (Routinely tested).

**Bioactivity-Cell based assay of VEGFA-86H**



Inhibition assay shows that the proliferation effect of Human VEGF165, Tag Free (HPLC-verified) is inhibited by increasing concentration of anti-VEGF mAb (Avastin). The concentration of VEGF165 used is 20 ng/ml. The ED50 is 0.065-0.229 µg/mL (Routinely tested).

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