

## Active Recombinant Human VEGFA Protein (Ala27-Arg191), GMP Grade, Animal-Free

Cat. No. VEGFA-10HG    Lot. No. (See product label)

### SPECIFICATION

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Overview</b> | GMP recombinant human VEGF 165 protein (Ala27-Arg191) without tag was expressed in E. coli, produced using non-animal reagents in an Animal-Free laboratory and manufactured and tested under cGMP guidelines.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Species</b>          | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Source</b>           | E.coli                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>ProteinLength</b>    | Ala27-Arg191                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Description</b>      | <p>This gene is a member of the PDGF/VEGF growth factor family. It encodes a heparin-binding protein, which exists as a disulfide-linked homodimer. This growth factor induces proliferation and migration of vascular endothelial cells, and is essential for both physiological and pathological angiogenesis. Disruption of this gene in mice resulted in abnormal embryonic blood vessel formation. This gene is upregulated in many known tumors and its expression is correlated with tumor stage and progression. Elevated levels of this protein are found in patients with POEMS syndrome, also known as Crow-Fukase syndrome. Allelic variants of this gene have been associated with microvascular complications of diabetes 1 (MVCD1) and atherosclerosis. Alternatively spliced transcript variants encoding different isoforms have been described. There is also evidence for alternative translation initiation from upstream non-AUG (CUG) codons resulting in additional isoforms. A recent study showed that a C-terminally extended isoform is produced by use of an alternative in-</p> |

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frame translation termination codon via a stop codon readthrough mechanism, and that this isoform is antiangiogenic. Expression of some isoforms derived from the AUG start codon is regulated by a small upstream open reading frame, which is located within an internal ribosome entry site. The levels of VEGF are increased during infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), thus promoting inflammation by facilitating recruitment of inflammatory cells, and by increasing the level of angiopoietin II (Ang II), one of two products of the SARS-CoV-2 binding target, angiotensin-converting enzyme 2 (ACE2). In turn, Ang II facilitates the elevation of VEGF, thus forming a vicious cycle in the release of inflammatory cytokines.

|                                     |                                                                                                                                                                                                                                                                                                             |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Form</b>                         | Disulfide-linked homodimer                                                                                                                                                                                                                                                                                  |
| <b>Bio-activity</b>                 | <p>Measured in a cell proliferation assay using HUVEC human umbilical vein endothelial cells. The ED50 for this effect is 1.50-12.0 ng/mL.</p> <p>The specific activity of recombinant human VEGF165 is &gt; 8.0 x 10<sup>5</sup> units/mg, which is calibrated against the human VEGF165 WHO standard.</p> |
| <b>Molecular Mass</b>               | <p>Predicted Molecular Mass: 19.2 kDa (monomer)</p> <p>SDS-PAGE: 19-21 kDa, under reducing conditions.</p>                                                                                                                                                                                                  |
| <b>N-terminal Sequence Analysis</b> | <p>Met-Ala27-Pro-Met-Ala-Glu-Gly-Gly-Gly-Gln</p> <p>Pro28-Met-Ala-Glu-Gly-Gly-Gly-Gln-Asn-His</p>                                                                                                                                                                                                           |
| <b>Endotoxin</b>                    | <0.01 EU/ µg of the protein by the LAL method.                                                                                                                                                                                                                                                              |
| <b>Purity</b>                       | >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.                                                                                                                                                                                                |
| <b>Storage</b>                      | Use a manual defrost freezer and avoid repeated freeze-thaw cycles.                                                                                                                                                                                                                                         |

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A minimum of 12 months when stored at  $\leq -20$  centigrade as supplied. Refer to lot specific COA for the Use by Date.

1 month, 2 to 8 centigrade under sterile conditions after reconstitution.

3 months,  $\leq -20$  centigrade under sterile conditions after reconstitution.

**Storage Buffer** Lyophilized from a 0.2  $\mu$ m filtered solution in Sodium Acetate.

**Reconstitution** Reconstitute at 500  $\mu$ g/mL in sterile deionized water.

**Shipping** The product is shipped with polar packs.

## GENE INFORMATION

**Gene Name** VEGFA vascular endothelial growth factor A [ Homo sapiens ]

**Official Symbol** VEGFA

**Synonyms** VEGFA; vascular endothelial growth factor A; vascular endothelial growth factor , VEGF; VEGF A; VPF; vascular permeability factor; VEGF; MVCD1; MGC70609;

**Gene ID** 7422

**mRNA Refseq** NM\_001171626

**Protein Refseq** NP\_001165097

**MIM** 192240

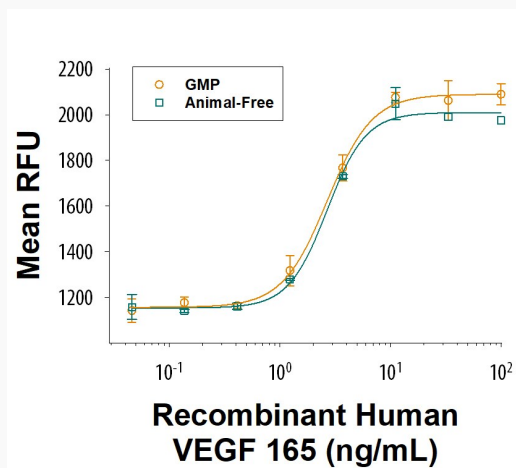
**UniProt ID** P15692

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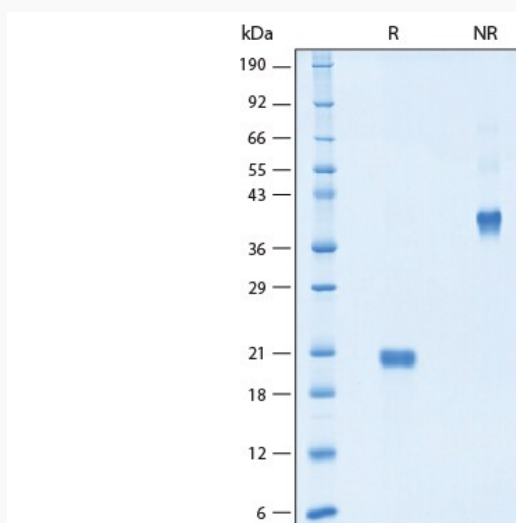
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## Bioactivity



## SDS-PAGE



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