**DESCRIPTION**

**Source**
Spodoptera frugiperda, Sf 21 (baculovirus)-derived human VEGF-D protein
Phe93-Ser201, with an N-terminal Met and C-terminal 6-His tag
Accession # O43915

**N-terminal Sequence Analysis**
Met

**Predicted Molecular Mass**
13 kDa (monomer)

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**SPECIFICATIONS**

**SDS-PAGE**
10-20 kDa, reducing conditions

**Activity**
The ED\(_{50}\) for this effect is 0.1-0.3 µg/mL.

Measured by its binding ability in a functional ELISA.
Immobilized recombinant human Flt-4 Fc Chimera at 5 µg/mL (100 µL/well) binds Recombinant Human VEGF-D with an apparent K\(_D\) <15 nM.

**Endotoxin Level**
<1.0 EU per 1 µg of the protein by the LAL method.

**Purity**
>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation**
Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

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**PREPARATION AND STORAGE**

**Reconstitution**
Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

**Shipping**
The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage**
- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

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**BACKGROUND**

Vascular endothelial growth factor D (VEGF-D), also known as c-fos-induced growth factor (FIGF), is a secreted glycoprotein of the VEGF/PDGF family. VEGFs regulate angiogenesis and lymphangiogenesis during development and tumor growth, and are characterized by eight conserved cysteine residues that form a cystine knot structure (1-3). VEGF-C and VEGF-D, which share 23% amino acid (aa) sequence identity, are uniquely expressed as preproproteins that contain long N- and C-terminal propeptide extensions around the VEGF homology domain (VHD) (1, 2). Proteolytic processing of the 354 aa VEGF-D preproprotein creates a secreted proprotein. Further processing by extracellular serine proteases, such as plasmin or furin-like proprotein convertases, forms mature VEGF-D consisting of non-covalently linked 42 kDa homodimers of the 117 aa VHD (4 - 6). Mature human VEGF-D shares 94%, 95%, 99%, 97% and 93% aa identity with mouse, rat, equine, canine and bovine VEGF-D, respectively (4, 5). It is expressed in adult lung, heart, muscle, and small intestine, and is most abundantly expressed in fetal lungs and skin (1-4). Mouse and human VEGF-D are ligands for VEGF Receptor 3 (VEGF R3, also called Flt-4) that are active across species and show enhanced affinity when processed (7). Processed human VEGF-D is also a ligand for VEGF R2, also called Flk-1 or KDR (7). VEGF R3 is strongly expressed in lymphatic endothelial cells and is essential for regulation of the growth and differentiation of lymphatic endothelium (1, 2). While VEGF-C is the critical ligand for VEGF R3 during embryonic lymphatic development, VEGF-D is most active in neonatal lymphatic maturation and bone growth (8-10). Both promote tumor lymphangiogenesis (11). Consonant with their activity on VEGF receptors, binding of VEGF-C and VEGF-D to neuropilins contributes to VEGF R3 signaling in lymphangiogenesis, while binding to integrin a9ß1 mediates endothelial cell adhesion and migration (12, 13).

**References:**