

**VEGF R2/KDR**  
**Catalog # PVGS1520****Specification**

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**VEGF R2/KDR - Product Information**

Primary Accession [P35968](#)  
**Species**  
Human

**Sequence**  
Ala20-Glu764

**Purity**  
> 98% as analyzed by SDS-PAGE<br>> 98% as analyzed by HPLC

**Endotoxin Level**  
< 0.2 EU/ µg of protein by gel clotting method

**Biological Activity**  
Measured by its ability to inhibit the VEGF dependent proliferation of HUVEC (human umbilical vein endothelial cells). The ED<sub>50</sub> for this effect is < 30.0 ng/ml in the presence of 5.0 ng/ml rhVEGF165 (Cat. No.: Z02689).

**Expression System**  
CHO

Formulation **Lyophilized after extensive dialysis against PBS.**

**Reconstitution**  
It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in ddH<sub>2</sub>O or PBS up to 100 µg/ml.

**Storage & Stability**  
Upon receiving, this product remains stable for up to 6 months at lower than -70°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. For long term storage it is recommended that a carrier protein (example 0.1% BSA) be added. Avoid repeated freeze-thaw cycles.

**VEGF R2/KDR - Additional Information**

**Gene ID** 3791

**Other Names**  
Vascular endothelial growth factor receptor 2, VEGFR-2, 2.7.10.1, Fetal liver kinase 1, FLK-1, Kinase insert domain receptor, KDR, Protein-tyrosine kinase receptor flk-1, CD309, KDR (<a href="http://www.genenames.org/cgi-bin/gene\_symbol\_report?hgnc\_id=6307" target="\_blank">HGNC:6307</a>), FLK1, VEGFR2

**Target Background**

Vascular endothelial growth factor receptor 2 (VEGF R2) , also known as Kinase insert domain receptor (KDR) and Fetal Liver Kinase 1 (Flk-1), is a type III receptor tyrosine kinase which plays a critical role in angiogenesis. VEGFR-1 and VEGFR-2 are closely related receptor tyrosine kinases and have both common and specific ligands. VEGFR-1 is a kinase-impaired RTK whereas VEGFR-2 is a highly active kinase. Vascular endothelial growth factors (VEGFs) are crucial regulators of vascular development during embryogenesis (vasculogenesis) as well as blood-vessel formation (angiogenesis) in the adult. In mammals, five VEGF ligands, which occur in several different splice variants and processed forms, have been identified so far. These ligands bind in an overlapping pattern to three receptor tyrosine kinases (RTKs), known as VEGF receptor-1, -2 and -3 (VEGFR1-3), as well as to co-receptors (here defined as VEGF-binding molecules that lack established VEGF-induced catalytic function), such as heparin sulphate proteoglycans (HSPGs) and neuropilins.

## **VEGF R2/KDR - Protein Information**

**Name** KDR ([HGNC:6307](#))

**Synonyms** FLK1, VEGFR2

### **Function**

Tyrosine-protein kinase that acts as a cell-surface receptor for VEGFA, VEGFC and VEGFD. Plays an essential role in the regulation of angiogenesis, vascular development, vascular permeability, and embryonic hematopoiesis. Promotes proliferation, survival, migration and differentiation of endothelial cells. Promotes reorganization of the actin cytoskeleton. Isoforms lacking a transmembrane domain, such as isoform 2 and isoform 3, may function as decoy receptors for VEGFA, VEGFC and/or VEGFD. Isoform 2 plays an important role as negative regulator of VEGFA- and VEGFC-mediated lymphangiogenesis by limiting the amount of free VEGFA and/or VEGFC and preventing their binding to FLT4. Modulates FLT1 and FLT4 signaling by forming heterodimers. Binding of vascular growth factors to isoform 1 leads to the activation of several signaling cascades. Activation of PLCG1 leads to the production of the cellular signaling molecules diacylglycerol and inositol 1,4,5-trisphosphate and the activation of protein kinase C. Mediates activation of MAPK1/ERK2, MAPK3/ERK1 and the MAP kinase signaling pathway, as well as of the AKT1 signaling pathway. Mediates phosphorylation of PIK3R1, the regulatory subunit of phosphatidylinositol 3-kinase, reorganization of the actin cytoskeleton and activation of PTK2/FAK1. Required for VEGFA-mediated induction of NOS2 and NOS3, leading to the production of the signaling molecule nitric oxide (NO) by endothelial cells. Phosphorylates PLCG1. Promotes phosphorylation of FYN, NCK1, NOS3, PIK3R1, PTK2/FAK1 and SRC.

### **Cellular Location**

Cell junction. Endoplasmic reticulum. Cell membrane. Note=Localized with RAP1A at cell-cell junctions (By similarity). Colocalizes with ERN1 and XBP1 in the endoplasmic reticulum in endothelial cells in a vascular endothelial growth factor (VEGF)-dependent manner (PubMed:23529610). {ECO:0000250, ECO:0000269|PubMed:23529610} [Isoform 2]: Secreted.

### **Tissue Location**

Detected in cornea (at protein level). Widely expressed.

## **VEGF R2/KDR - Protocols**

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)

- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

## **VEGF R2/KDR - Images**