

## VEGFR-2 Protein, Human (Biotinylated, HEK293, mFc)

Cat. No.:	HY-P700850
Synonyms:	CD309; KDR; VEGFR; VEGFR2; VEGFR-21; FLK1; KRD1; Ly73
Species:	Human
Source:	HEK293
Accession:	P35968-1 (A20-E764)
Gene ID:	3791
Molecular Weight:	135-160 kDa

### PROPERTIES

<b>Biological Activity</b>	Immobilized Human VEGF165, No Tag at 2µg/ml (100µl/Well) on the plate. Dose response curve for Biotinylated Human VEGF R2, mFc Tag with the EC <sub>50</sub> of 0.14µg/ml determined by ELISA.
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.22 µm filtered solution of PBS, pH 7.4. Normally 8% trehalose is added as protectant before lyophilization.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O.
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

#### Background

VEGFR-2 protein, a tyrosine-protein kinase, serves as a cell-surface receptor for VEGFA, VEGFC, and VEGFD, playing a pivotal role in the intricate regulation of angiogenesis, vascular development, vascular permeability, and embryonic hematopoiesis. It actively promotes the proliferation, survival, migration, and differentiation of endothelial cells, while also influencing the reorganization of the actin cytoskeleton. Certain isoforms, lacking a transmembrane domain like isoform 2 and isoform 3, may function as decoy receptors, modulating VEGFA, VEGFC, and/or VEGFD signaling. Specifically, isoform 2 acts as a negative regulator of VEGFA- and VEGFC-mediated lymphangiogenesis by limiting the availability of free VEGFA and/or VEGFC, preventing their binding to FLT4. VEGFR-2 modulates FLT1 and FLT4 signaling through heterodimer formation. Binding of vascular growth factors to isoform 1 triggers multiple signaling cascades, including the activation of PLCG1, resulting in the production of diacylglycerol and inositol 1,4,5-trisphosphate and the subsequent activation of protein kinase C. Additionally, VEGFR-2 mediates the activation of MAP kinase signaling pathways, AKT1 signaling pathway, and the phosphorylation of PIK3R1, contributing to the reorganization of the actin cytoskeleton and the activation of PTK2/FAK1. Its crucial role extends to facilitating VEGFA-mediated induction of NOS2 and NOS3, leading to the production

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of the signaling molecule nitric oxide (NO) by endothelial cells. VEGFR-2's phosphorylation activity includes PLCG1, FYN, NCK1, NOS3, PIK3R1, PTK2/FAK1, and SRC, highlighting its comprehensive involvement in modulating diverse cellular processes.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA