

VEGFR-2 Protein, Human (HEK293, mFc)

Cat. No.:	HY-P78536
Synonyms:	CD309; KDR; VEGFR; VEGFR2; VEGFR-21; FLK1; KRD1; Ly73
Species:	Human
Source:	HEK293
Accession:	P35968 (A20-E764)
Gene ID:	3791
Molecular Weight:	150-200 kDa

PROPERTIES

Biological Activity	Immobilized Human VEGF165 1µg/ml (100µl/Well) on the plate. Dose response curve for Human VEGF R2, mFc Tag with the EC ₅₀ of 42.3ng/ml determined by ELISA.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 µm filtered solution of PBS, pH 7.4. Normally 5% trehalose is added as protectant before lyophilization.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	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.
Shipping	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

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.

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

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