VEGFR-2 Protein, Mouse (743a.a, HEK293, Fc)

Cat. No.:	HY-P72429
Synonyms:	Vascular endothelial growth factor receptor 2; VEGFR-2; FLK-1; NYK; CD309
Species:	Mouse
Source:	HEK293
Accession:	P35918 (A20-E762)
Gene ID:	16542
Molecular Weight:	Approximately 138.21 kDa

PROPERTIES

AA Sequence	A S V G L P G D F L H P P K L S T Q K D I L T I L A N T T L Q I T C R G Q R D L D W L W P N A Q R D S E E R V L V T E C G G G D S I F C K T L T I P R V V G N D T G A Y K C S Y R D V D I A S T V Y V Y V R D Y R S P F I A S V S D Q H G I V Y I T E N K N K T V V I P C R G S I S N L N V S L C A R Y P E K R F V P D G N R I S W D S E I G F T L P S Y M I S Y A G M V F C E A K I N D E T Y Q S I M Y I V V V V G Y R I Y D V I L S P P H E I E L S A G E K L V L N C T A R T E L N V G L D F T W H S P P S K S H H K K I V N R D V K P F P G T V A K M F L S T L T I E S V T K S D Q G E Y T C V A S S G R M I K R N R T F V R V H T K P F I A F G S G M K S L V E A T V G S Q V R I P V K Y L S Y P A P D I K W Y R N G R P I E S N Y T M I V G D E L T I M E V T E R D A G N Y T V I L T N P I S M E K Q S H M V S L V V N V P P Q I G E K A L I S P M D S Y Q Y G T M Q T L T C T V Y A N P P L H H I Q W Y W Q L E E A C S Y R P G Q T S P Y A C K E W R H V E D F Q G G N K I E V T K N Q Y A L I E G K N K T V S T L V I Q A A N V S A L Y K C E A I N K A G R G E R V I S F H V I R G P E I T V Q P A A Q P T E Q E S V S L L C T A D R N T F E N L T W Y K L G S Q A T S V H M G E S L T P V C K N L D A L W K L N G T M F S N S T N D I L I V A F Q N A S L Q D Q G D Y V C S A Q D K K T K K R H C L V K Q L I I L E R M A P M I T G N L E N Q T T T I G E T I E V T C P A S G N P T P H I T W F K D N E T L V E D S G I V L R D G N R N L T I R R V R K E D G G L Y T C Q A C N V L G C A R A E T L F I I E G A Q E K T N L E
Biological Activity	Measured by its ability to inhibit the VEGF-dependent proliferation of HUVEC human umbilical vein endothelial cells. The ED_{50} this effect is 4.894 ng/mL in the presence of 5 ng/mL recombinant human VEGF165, corresponding to a specific activity is 2.043×10^5 units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4 or 20 mM PB, 150 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is

	recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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, a tyrosine-protein kinase, serves as a crucial cell-surface receptor for VEGFA, VEGFC, and VEGFD, playing a fundamental role in angiogenesis regulation, vascular development, permeability, and embryonic hematopoiesis. It actively promotes endothelial cell proliferation, survival, migration, and differentiation, as well as the reorganization of the actin cytoskeleton. Isoforms lacking a transmembrane domain, like isoform 2, may function as decoy receptors, particularly in negatively regulating VEGFA- and VEGFC-mediated lymphangiogenesis by limiting the availability of free VEGFA and/or VEGFC and preventing their binding to FLT4. VEGFR-2 modulates FLT1 and FLT4 signaling through heterodimer formation. The binding of vascular growth factors to isoform 1 initiates various signaling cascades, including the activation of PLCG1, resulting in the production of diacylglycerol and inositol 1,4,5-trisphosphate and the activation of protein kinase C. Additionally, it mediates the activation of MAPK1/ERK2, MAPK3/ERK1, AKT1, and the phosphorylation of PIK3R1, contributing to phosphatidylinositol 3-kinase regulation and actin cytoskeleton reorganization. VEGFR-2 is indispensable for VEGFA-induced NOS2 and NOS3 expression, leading to nitric oxide production by endothelial cells, and it phosphorylates PLCG1, FYN, NCK1, NOS3, PIK3R1, PTK2/FAK1, and SRC.

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