KDR Cell Lysate – Tissue Lysate

PRODUCT OVERVIEW

Product Name	VEGFR2/KDR, Cell Lysate
Full Product Name	Human VEGFR2/KDR HEK293 Overexpression Lysate
Product Gene Name	KDR cell lysate
Product Synonym Names	Human VEGFR2/Flk-1/CD309/KDR HEK293 Cell Lysate (WB positive control); kinase insert domain receptor; Human CD309 Overexpression Lysate; Human Flk-1 Overexpression Lysate; Human FLK1 Overexpression Lysate; Human VEGFR Overexpression Lysate; Human VEGFR2 Overexpression Lysate
Sequence	Asp120-Lys 327
Host	HEK293 Cells
Form/Format	1x Sample Buffer (1x modified RIPA buffer+1x SDS loading buffer). Modified RIPA Lysis Buffer: 50 mM Tris-HCl pH 7.4, 150 mM NaCl, 1mM EDTA, 1% Triton X-100, 0.1% SDS, 1% Sodium deoxycholate, 1mM PMSF.
Preparation and Storage	Store at 4 degree C for up to twelve months from date of receipt. After re-dissolution, aliquot and store at -80 degree C for up to twelve months. Avoid repeated freeze-thaw cycles. Samples are stable for up to twelve months from date of receipt.
Molecular Weight	151,527 Da
Sequence Positions	219aa
Chromosome Location	Chromosome: 4; NC_000004.11 (55944426..55991762, complement). Location: 4q11-q12
OMIM	191306
3D Structure	ModBase 3D Structure for P35968
Species	Human
Recommend Usage	1. Centrifuge the tube for a few seconds and ensure the pellet at the bottom of the tube.**2. Re-dissolve the pellet using 200uL pure water and boil for 2-5 min.**
Sequence Construction	A DNA sequence encoding the human KDR (NP_002244.1) (Asp120-Lys327) was expressed with a polyhistidine tag at the C-terminus.
Preparation Method	Cell lysate was prepared by homogenization of the over-expressed cells in ice-cold modified RIPA Lysis Buffer with cocktail of protease inhibitors. Cell debris was removed by centrifugation. Protein concentration was determined by Bradford assay (protein assay, Microplate Standard assay). The cell lysate was boiled for 5 min in 1 x SDS loading buffer (50mM Tris-HCl pH 6.8, 12.5% glycerol, 1% sodium dodecylsulfate, 0.01% bromophenol blue) containing 5% b-mercaptoethanol, and lyophilized.
Product Categories/Family for KDR cell lysate	Cancer Drug Targets Hemangioblast Markers Receptor Tyrosine Kinases (RTKs)
Applications Tested/Suitable for KDR cell lysate	Western Blot (WB)
Application Notes for KDR cell lysate	WB: Use at an assay dependent dilution.

Related Product Information for KDR cell lysate	VEGFR2 also called KDR or Flk-1, is identified as the receptor for VEGF and VEGFC and an early marker for endothelial cell progenitors, whose expression is restricted to endothelial cells in vivo. VEGFR2 was shown to be the primary signal transducer for angiogenesis and the development of pathological conditions such as cancer and diabetic retinopathy. It has been shown that VEGFR2 is expressed mainly in the endothelial cells, and the expression is upregulated in the tumor vasculature. Thus the inhibition of VEGFR2 activity and its downstream signaling are important targets for the treatment of diseases involving angiogenesis. VEGFR2 transduces the major signals for angiogenesis via its strong tyrosine kinase activity. However, unlike other representative tyrosine kinase receptors, VEGFR2 does not use the Ras pathway as major downstream signaling but rather uses the phospholipase C-protein kinase C pathway to signal mitogen-activated protein (MAP)-kinase activation and DNA synthesis. VEGFR2 is a direct and major signal transducer for pathological angiogenesis, including cancer and diabetic retinopathy, in cooperation with many other signaling partners; thus, VEGFR2 and its downstream signaling appear to be critical targets for the suppression of these diseases. VEGF and VEGFR2-mediated survival signaling are critical to endothelial cell survival, maintenance of the vasculature and alveolar structure, and regeneration of lung tissue. Reduced VEGF and VEGFR2 expression in emphysematous lungs has been linked to increased endothelial cell death and vascular regression. This Human VEGFR2/KDR overexpression lysate was created in HEK293 Cells and intented for use as a Western blot (WB) positive control. Purification of VEGFR2/KDR protein from the overexpression lysate was verified.
Product References and Citations for KDR cell lysate	Shibuya M. (2006) Vascular endothelial growth factor (VEGF)-Receptor2: its biological functions, major signaling pathway, and specific ligand VEGF-E. Endothelium. 13(2): 63-9. Marwick JA, et al. (2010) Cigarette smoke regulates VEGFR2-mediated survival signaling in rat lungs. J Inflamm (Lond). 7(1): 11. Bruns AF, et al. (2010) Ligand-stimulated VEGFR2 signaling is regulated by co-ordinated trafficking and proteolysis. Traffic. 11(1): 161-74.
Other Notes	Small volumes of KDR cell lysate vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for KDR purchase	MBS8113387 is a cell lysate targeting KDR. Also known as Human VEGFR2/KDR HEK293 Overexpression Lysate. Host: HEK293 Cells.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for KDR. It may not necessarily be applicable to this product.

NCBI GI #	11321597
NCBI GeneID	3791
NCBI Accession #	NP_002244.1
UniProt Primary Accession #	P35968
UniProt Secondary Accession #	O60723; Q14178; A2RRS0; B5A925; C5IFA0
UniProt Related Accession #	P35968
GenBank Nucleotide #	NM_002253.2
NCBI Official Full Name	vascular endothelial growth factor receptor 2
NCBI Official Synonym Full Names	kinase insert domain receptor (a type III receptor tyrosine kinase)
NCBI Official Symbol	KDR
NCBI Official Synonym Symbols	FLK1; CD309; VEGFR; VEGFR2
UniProt Protein Name	Vascular endothelial growth factor receptor 2
UniProt Synonym Protein Names	Fetal liver kinase 1; FLK-1; Kinase insert domain receptor; KDR; Protein-tyrosine kinase receptor flk-1
Protein Family	Vascular endothelial growth factor receptor
UniProt Gene Name	KDR
UniProt Synonym Gene Names	FLK1; VEGFR2; VEGFR-2; FLK-1; KDR

UniProt Entry Name	VGFR2_HUMAN
NCBI Protein Information	vascular endothelial growth factor receptor 2; soluble VEGFR2; fetal liver kinase 1; fetal liver kinase-1; protein-tyrosine kinase receptor Flk-1; tyrosine kinase growth factor receptor
NCBI Summary for KDR	Vascular endothelial growth factor (VEGF) is a major growth factor for endothelial cells. This gene encodes one of the two receptors of the VEGF. This receptor, known as kinase insert domain receptor, is a type III receptor tyrosine kinase. It functions as the main mediator of VEGF-induced endothelial proliferation, survival, migration, tubular morphogenesis and sprouting. The signalling and trafficking of this receptor are regulated by multiple factors, including Rab GTPase, P2Y purine nucleotide receptor, integrin alphaVbeta3, T-cell protein tyrosine phosphatase, etc.. Mutations of this gene are implicated in infantile capillary hemangiomas. [provided by RefSeq, May 2009]
UniProt Comments for KDR	VEGFR2: a receptor tyrosine kinase of the VEGFR family. High affinity receptor for VEGF and VEGF-C. Ligand binding induces autophosphorylation and activation. Activated receptor recruits proteins including Shc, GRB2, PI3K, Nck, SHP-1 and SHP-2. Plays a key role in vascular development and regulation of vascular permeability. Protein type: Membrane protein, integral; Kinase, protein; Protein kinase, tyrosine (receptor); Protein kinase, TK; EC 2.7.10.1; TK group; VEGFR family Chromosomal Location of Human Ortholog: 4q11-q12 Cellular Component: Golgi apparatus; integral to plasma membrane; endoplasmic reticulum; early endosome; cytoplasmic membrane-bound vesicle; extracellular region; plasma membrane; cell junction; nucleus; endosome; external side of plasma membrane; lipid raft Molecular Function: integrin binding; vascular endothelial growth factor receptor activity; protein binding; growth factor binding; protein-tyrosine kinase activity; receptor signaling protein tyrosine kinase activity; transmembrane receptor protein tyrosine kinase activity; Hsp90 protein binding; ATP binding Biological Process: extracellular matrix organization and biogenesis; positive regulation of positive chemotaxis; peptidyl-tyrosine phosphorylation; viral reproduction; protein amino acid autophosphorylation; cell maturation; calcium ion homeostasis; regulation of cell shape; positive regulation of focal adhesion formation; ovarian follicle development; positive regulation of MAPKKK cascade; positive regulation of cell proliferation; positive regulation of mesenchymal cell proliferation; angiogenesis; vasculogenesis; endothelial cell differentiation; cell fate commitment; embryonic hemopoiesis; positive regulation of phosphoinositide 3-kinase cascade; positive regulation of angiogenesis; cell migration during sprouting angiogenesis; branching morphogenesis of a tube; positive regulation of endothelial cell proliferation; positive regulation of protein amino acid phosphorylation; vascular endothelial growth factor receptor signaling pathway; lymph vessel development; alveolus development; surfactant homeostasis; transmembrane receptor protein tyrosine kinase signaling pathway; negative regulation of apoptosis; positive regulation of nitric-oxide synthase biosynthetic process; positive regulation of cell migration Disease: Hemangioma, Capillary Infantile
Research Articles on KDR	**1.** By augmenting VEGFR2 expression in the placental amnion, PBEF primes the tissue for a VEGF-mediated increase in permeability.
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