Datasheet

Cat. No. PH2038

Recombinant Human VEGF-A/VEGF165

Accession #	NP_001165097
Alternate Names	MVCD1; VAS; vascular endothelial growth factor A; Vascular permeability factor; VEGF; VEGFA
Source	Human embryonic kidney cell, HEK293-derived human VEGF protein
Protein sequence	Ala27-Arg191
M.Wt	19.2 kDa(Monomer)
Appearance	Solution protein.
Stability & Storage	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 12 months from date of receipt, -20 to -70 °C as supplied.
Concentration	0. 2 mg/mL
Formulation	Dissolved in sterile PBS buffer.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. This solution can be diluted into other aqueous buffers.
Biological Activity	Measured in a cell proliferation assay using HUVEC human umbilical vein endothelial cells. The EC50 for this effect is 0.5-3 ng/mL.
Shipping Condition	Shipping with dry ice.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

Quality Control

Purity	> 95%, determined by SDS-PAGE.
Endotoxin	<0.010 EU per 1 ug of the protein by the LAL method.

Description

Vascular Endothelial Growth Factor (VEGF) is a potent growth factor that promotes both angiogenesis and vascular permeability [1-3]. It acts on endothelial cells by signaling primarily through two VEGF receptors, VEGF R1 (also called Flt-1) and VEGF R2 (Flk-1/KDR). VEGF's main responsibility is to induce blood vessel formation during development and following tissue injury, and to bypass blocked blood vessels. During embryogenesis, VEGF is required for proliferation, migration, and survival of endothelial cells [3, 4]. In addition, VEGF also plays a role in several other physiological processes such as hematopoiesis, bone formation, wound healing, and neuronal development. Pathologically, VEGF is involved in tumor angiogenesis and vascular leakage [6, 7], and it has been implicated as a major player in many different cancers, both solid tumors and hematopoietic malignancies. Circulating VEGF levels correlate with disease activity in autoimmune diseases such

as rheumatoid arthritis, multiple sclerosis and systemic lupus erythematosus [8]. VEGF expression is induced by hypoxia and cytokines such as IL-1, IL-6, IL-8, oncostatin M and TNF-alpha [3, 4, 9]. Human VEGF165 shares 88% aa sequence identity with corresponding regions of mouse and rat, 96% with porcine, 95% with canine, and 93% with feline, equine and bovine VEGF, respectively. VEGF signals by binding to the type I transmembrane receptor tyrosine kinases VEGF R1 (also called Flt-1) and VEGF R2 (Flk-1/KDR) on endothelial cells [4]. Although VEGF affinity is highest for binding to VEGF R1, VEGF R2 appears to be the primary mediator of VEGF angiogenic activity [3, 4]. VEGF 165 also binds the semaphorin receptor, Neuropilin-1 and promotes complex formation with VEGF R2 [5].

Reference

[1]. Leung, D.W. et al. (1989) Science 246:1306.

[2]. Keck, P.J. et al. (1989) Science 246:1309.

[3]. Byrne, A.M. et al. (2005) J. Cell. Mol. Med. 9:777.

[4]. Robinson, C.J. and S.E. Stringer (2001) J. Cell. Sci. 114:853.

[5]. Pan, Q. et al. (2007) J. Biol. Chem. 282:24049.

[6]. Weis, S.M. and D.A. Cheresh (2005) Nature 437:497.

[7]. Thurston, G. (2002) J. Anat. 200:575.

[8]. Carvalho, J.F. et al. (2007) J. Clin. Immunol. 27:246.

[9]. Angelo, L.S. and R. Kurzrock (2007) Clin. Cancer Res. 13:2825.