CELL APPLICATIONS, INC.

VEGF-D Antibody

Cat. No. CA1461

Applications:	**WB, IHC**
Detected MW:	**40 kDa**
Species & Reactivity:	**Human, Mouse, Rat, Rabbit**
Isotype:	**Rabbit IgG**

BACKGROUND

Vascular endothelial growth factor (VEGF) is an important signaling protein involved in both vasculogenesis (the de novo formation of the embryonic circulatory system) and angiogenesis (the growth of blood vessels from pre-existing vasculature). VEGF has several splicing isoforms (in humans: VEGF121, VEGF121b, VEGF145, VEGF165, VEGF165b, VEGF189, VEGF206; the rodent orthologs of these proteins contain one fewer amino acid). They belong to a growth factor family containing other closely-related proteins (PIGF, VEGF-B, VEGF-C, VEGF-D, and PIGF).[1] VEGF is sometimes referred to as VEGF-A to differentiate it from these related growth factors. A number of VEGF-related proteins have also been discovered encoded by viruses (VEGF-E) and in the venom of some snakes (VEGF-F).[2]

All members of the VEGF family stimulate cellular responses by binding to tyrosine kinase receptors (the VEGFRs) on the cell surface. The ligand binding leads to dimerization of receptors and activation of their kinase activity. The activated receptor tyrosine kinases interact with and phosphorylate downstream signaling components including PLC-gamma, p85, and SHC etc, which mediate VEGF-signaling in the cells.[3,4]

VEGF-C and VEGF-D (also known as c-fos-induced growth factor) are the only known ligands for VEGFR-3. VEGF-D is angiogenic, mitogenic for endothelial cells *in vitro*, is expressed at many sites in the developing embryo, and is localized in human tumors. VEGF-D also induced lymphangiogenesis and metastatic spread via the lymphatics in a mouse tumor model. VEGF-D is initially synthesized as a precursor protein containing N- and C-terminal propeptides in addition to the VEGF homology domain (VHD), the region of the protein that shares homology with all VEGF family members and contains receptor-binding epitopes. The N- and C-terminal propeptides are proteolytically cleaved from the VHD during biosynthesis to generate a mature, secreted form consisting of dimers of the VHD. The mature form of human VEGF-D binds both VEGFR-2 and VEGFR-3 with much higher affinity than does unprocessed VEGF-D. Therefore proteolytic processing is important for activating human VEGF-D. As human VEGF-D activates VEGFR-2 and VEGFR-3, it has been proposed that VEGF-D can stimulate the growth of blood vessels and lymphatic vessels into regions of developing embryos and tumors.[5]

References:

1. Neufeld, G. et al. FASEB J. 13:9, 1999.
2. Yamazaki, Y. & Morita, T. : Mol. Divers. 10:215, 2006.
3. Shapiro, S. D.: J Clin Invest.106: 1309, 2000.
4. Meyer, R. D. et al. : J. Biol. Chem. 277: 27081, 2002.
5. Achen, M.G. et al: proc. Natl. Acad. Sci. USA 95:548-53, 1998

TECHNICAL INFORMATION

Source: Anti-VEGF-D is produced in rabbits immunized with a synthetic peptide corresponding to a sequence near the C-terminal of human VEGF-D, different from the related mouse and rat sequence by single amino acid. VEGF-D specific antibody was purified by peptide affinity chromatography.

Specificity and Sensitivity: Anti-VEGF-D reacts specifically with VEGF-D of human, rabbit, mouse & rat origin in immunostaining and western blotting, no cross-reactivity with other members of the family.

Storage Buffer: 10mM HEPES (pH 7.5), 150mM NaCl, 100µg/ml BSA and 200µg/ml sodium azide.

Storage: Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:500 – 1:1000
IP	n/d
IHC	1:50 – 1:200
ICC	n/d
FACS	n/d

*****Optimal dilutions must be determined by end user.*

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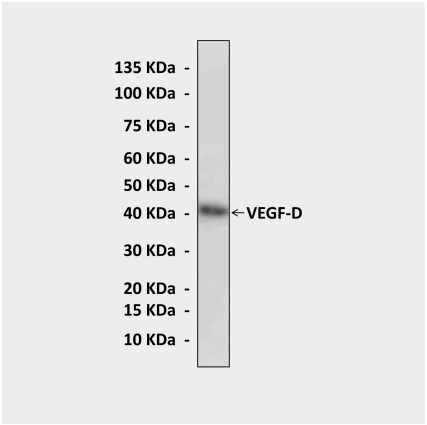
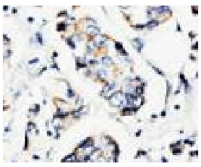
QUALITY CONTROL DATA





Top: Detection of VEGF-D from rat cardiac muscle tissue lysate in Western blot assay, using Anti- VEGF-D. **Bottom:** Immunohistochemical staining of paraffin-embedded human breast cancer tissue, using Anti-VEGF-D.