



VEGF (mBA-165): sc-4571

BACKGROUND

The onset of angiogenesis is believed to be an early event in tumorigenesis and may facilitate tumor progression and metastasis. Several growth factors with angiogenic activity have been described. These include fibroblast growth factors (FGFs), platelet derived growth factor (PDGF) and vascular endothelial growth factor (VEGF). VEGF is a dimeric glycoprotein with structural homology to PDGF. Several variants of VEGF have been described that arise by alternative mRNA splicing. It has been speculated that VEGF may function as a tumor angiogenesis factor *in vivo* because the expression pattern of VEGF is consistent with a role in embryonic angiogenesis. VEGF mRNA is formed in some primary tumors, VEGF is produced by tumor cell lines *in vitro* and VEGF mitogenic activity appears to be restricted to endothelial cells. A member of the PDGF receptor family, Flt, has been identified as a high-affinity receptor for VEGF.

REFERENCES

1. Folkman, J., et al. 1989. Induction of angiogenesis during the transition from hyperplasia to neoplasia. *Nature* 339: 58-61.
2. Conn, G., et al. 1990. Purification of a glycoprotein vascular endothelial cell mitogen from a rat glioma-derived cell line. *Proc. Natl. Acad. Sci. USA* 87: 1323-1327.

CHROMOSOMAL LOCATION

Genetic locus: VEGFA (human) mapping to 6p21.1; Vegfa (mouse) mapping to 17 C.

SOURCE

VEGF (mBA-165) is produced in *E. coli* as 40 kDa biologically active, GST-tagged protein corresponding to a 119 amino acid fragment of VEGF of mouse origin.

PRODUCT

VEGF (mBA-165) is purified from bacterial lysates (> 98%); supplied as 50 µg purified protein.

APPLICATIONS

VEGF (mBA-165) is recommended for use as a Western blotting control for sc-507, sc-1836, sc-7269, sc-53462, sc-57496, sc-65617 and sc-365578.

Molecular Weight of VEGF monomer: 21 kDa.

Molecular Weight of VEGF dimer: 42 kDa.

BIOLOGICAL ACTIVITY

VEGF (mBA-165) is biologically active as determined by mitogenic activity on human umbilical vein endothelial cells and bovine aortic endothelial cells using a concentration range of 1.0-5.0 ng/ml determined by induction of choline acetyl transferase activity in rat basal forebrain primary septal cultures: ED₅₀ = 2-5 ng/ml.

RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50 mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

SELECT PRODUCT CITATIONS

1. Parvadia, J.K., et al. 2007. Role of VEGF in small bowel adaptation after resection: the adaptive response is angiogenesis dependent. *Am. J. Physiol. Gastrointest. Liver Physiol.* 293: G591-G598.
2. Nowicki, M., et al. 2007. The significance of VEGF-C/VEGFR-2 interaction in the neovascularization and prognosis of nephroblastoma (Wilms' tumour). *Histopathology* 50: 358-364.
3. Nowicki, M., et al. 2008. Vascular endothelial growth factor (VEGF)-C-a potent risk factor in children diagnosed with stadium 4 neuroblastoma. *Folia Histochem. Cytobiol.* 46: 493-499.
4. Ortuzar, N., et al. 2011. Combination of intracortically administered VEGF and environmental enrichment enhances brain protection in developing rats. *J. Neural Transm.* 118: 135-144.
5. Argandoña, E.G., et al. 2012. Effect of intracortical vascular endothelial growth factor infusion and blockade during the critical period in the rat visual cortex. *Brain Res.* 1473: 141-154.
6. Takehara, Y., et al. 2013. The restorative effects of adipose-derived mesenchymal stem cells on damaged ovarian function. *Lab. Invest.* 93: 181-193.
7. Ruiz-Manzano, R.A., et al. 2020. Potential novel risk factor for breast cancer: *Toxocara canis* infection increases tumor size due to modulation of the tumor immune microenvironment. *Front. Oncol.* 10: 736.
8. Le, Y.Z., et al. 2021. VEGF Mediates retinal Müller cell viability and neuroprotection through BDNF in diabetes. *Biomolecules* 11: 712.
9. Ruiz Manzano, R.A., et al. 2022. Intratumoral treatment with 5-androstene-3β, 17α-diol reduces tumor size and lung metastasis in a triple-negative experimental model of breast cancer. *Int. J. Mol. Sci.* 23: 11944.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.