

---

<b>Cat#</b>	<b>SP-88261-5</b>
<b>Description:</b>	Anti-Flt1 Peptide (AA: Gly-Asn-Gln-Trp-Phe-Ile) (MW: 763.86)
<b>Size:</b>	5 mg
<b>Purity:</b>	>95%
<b>Store:</b>	Desiccated at -20oC.

---

Embryonic vascular system undergoes a series of complex, highly regulated series of events involving differentiation, migration and association of primitive endothelial cells. This process is termed vasculogenesis. A further remodeling of the primitive vascular system forms the mature cardiovascular system, is known as angiogenesis (sprouting of new capillary vessels from pre-existing vasculature). Study of tumor angiogenesis has led to the identification of several proteins including basic fibroblast growth factor (bFGF) and vascular endothelial growth factor. VEGF acts by interacting with a family of largely endothelial-specific receptor tyrosine kinases that includes VEGFR-1 (flt-1/flk-2), VEGFR-2 (flk-1/KDR), and VEGFR-3/Flt-4. Disruption of VEGFRs interferes with differentiation of endothelial cells and it is lethal for the embryo.

**FLT-1** (fms-like tyrosine kinase or VEGF-R1; human 1338 aa; rat 1336 aa, and mouse 1330aa), a putative receptor protein tyrosine kinase, is a receptor for VEGF and PLGF. It is type 1 membrane protein. It is expressed in normal lung, placenta, liver, kidney, heart, and brain but not in tumor. Vascular endothelial growth factor receptor 1 is a protein that in humans is encoded by the FLT1 gene. Yoshida et al. (1987) proposed the name FLT as an acronym for **FMS-like tyrosine kinase**. FLT1 has been shown to interact with PLCG1 and Vascular endothelial growth factor B.

The anti-Flt1 peptide **GNQWFI** shows specificity toward binding to **VEGFR1** and it inhibits binding of VEGF, placental growth factor (PIGF), and VEGF/PIGF heterodimer to VEGFR1 thereby inhibiting VEGFR1 mediated endothelial cell migration and tube formation. Effects of the peptide on proliferation, cell migration, and fibrin gel-based angiogenesis of endothelial cells were investigated. VEGF-induced migration and capillary formation are mediated through VEGFR1, and these processes may play an important role in the growth and metastasis of VEGF-secreting tumors. This peptide does not inhibit the proliferation of endothelial cells induced by VEGF and VEGF/PIGF heterodimer but it effectively blocks VEGF-induced migration of endothelial cells and their capacity to form capillary-like structures on fibrin gel-based in vitro angiogenesis system.

The activity of anti-Flt1, in vivo, was evaluated for inhibition of tumor growth and metastasis in VEGF-secreting cancer cell-implanted mice by s.c. injections of the peptide. Growth and metastasis of VEGF-secreting tumor cells were also significantly inhibited by s.c. injections of anti-Flt1 peptide in nude mice. The effects on endothelial cell functions, in vitro, indicate that the anticancer activity of anti-Flt1 peptide with reduced blood vessel density could also be due to the blocking of VEGFR1-mediated endothelial cell migration and tube formation. Although the effects of anti-Flt1 peptide still remain to be further characterized, the receptor 1-specific peptide antagonist, anti-Flt1, has potential as a therapeutic agent for various angiogenesis-related diseases, especially cancer.

**Reference:** Eun Ju Oh (2009) *biomaterials* 30, 6026-6034; Bae DG (2005) *Clin Cancer Res* 11(7):2651-61. Shibuya Me tal (1990) *Oncogene* 5, 519; Matsushima H et al (1987) *Jpn. J Cancer Res.* 78, 655; Yamane A et al (1994) *Oncogene* 9, 2683; Finnerty H et al (1993) *Oncogene* 8, 2293; Choi k et al (1994) *Oncogene* 9, 1261; Plouet J et al (1989) *EMBO J* 8, 3801; Simon M et al (1998) *J Am. Soc. Nephrol.* Vol. 9 1032; Sait SN et al (1995) *Cytogenet. Cell Genet.* 70, 145; deVries C et al (1992) *Science* 255, 989.

---

\*This product is for in vitro research use only.

---

**Related items:**

MA-20387	Mouse Monoclonal Anti-Human Fms-related tyrosine kinase 1 (FLT1)
SP-88261-5	Anti-Flt1 Peptide (AA: Gly-Asn-Gln-Trp-Phe-Ile) (MW: 763.86)
FLT11-A	Anti-human FLT-1/VEGFR-1 IgG #1, aff pure
FLT11-P	Human FLT-1/VEGFR-1 Control/blocking peptide #1
FLT12-M	Mouse Monoclonal Anti-human FLT-1/VEGFR-1 IgG, aff pure
FLT13-M	Rat Monoclonal Anti-Mouse FLT-1/VEGFR-1 IgG, aff pure

SP-88261-5

rev.140818P