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ProductInformation

MONOCLONAL ANTI-VEGF RECEPTOR-1 (Flt1 Receptor),
Clone FLT-19

Product Number **V4762**

Product Description
Monoclonal Anti-VEGF Receptor-1 (Flt1 Receptor) (mouse IgG1 isotype) is derived from the FLT-19 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a recombinant extracellular domain of VEGF Receptor-1 (Flt1 Receptor) of human origin. The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-VEGF Receptor-1 (Flt1 Receptor) reacts specifically with the extracellular domain of human VEGF Receptor-1 (Flt1 Receptor). The epitope recognized by the antibody resides within amino acids 1-251 of the VEGF Receptor-1 molecule. The antibody does not recognize VEGF Receptor-2 (KDR).

Monoclonal Anti VEGF Receptor-1 (Flt1 Receptor) may be used for the localization of VEGF-R1 (Flt1 Receptor), using various immunochemical assays such as ELISA, immunohistochemistry (frozen sections) and immunoprecipitation.

Vascular endothelial growth factor (VEGF), also called vasculotropin (VAS)[1] and vascular permeability factor (VPF),[2] is a member of a family of endothelial cell mitogens and angiogenic factors. VEGF is a homodimeric heparin-binding glycoprotein that specifically stimulates the proliferation of endothelial cells isolated from both small and large vessels. These include endothelial cells from adrenal cortex, cerebral cortex, fetal and adult aorta and human umbilical vein.[3] The mitogenic activity of VEGF appears to be stimulated by specific VEGF receptors (160-200 kDa) which can be found on the surface of various endothelial cells.[4] VEGF binds to two structurally similar receptor tyrosine kinases; Flt1[5] (fms-like tyrosine kinase 1, also termed VEGF Receptor-1, VEGF-R1), and KDR[6] (kinase-insert domain containing receptor, also termed VEGF-R2).[7] The homologous gene for the human KDR gene is mouse Flk1 (fetal liver kinase 1) and rat TKrc. Both receptors are members of a superfamily of receptor tyrosine kinases (RTKs) which include PDGF receptor, c-fms, M-CSF receptor and c-kit (the receptor for stem-cell factor). The KDR gene has been mapped to human chromosome 4q11-q12, which is the same locus of PDGF receptor and c-kit.[8] The extracellular domains of KDR/Flk1 and Flt1 (approx. 90 kDa) have seven immunoglobulin-like domains and belong to the class III RTKs. This family includes also Flt4 that shares a high homology with the two VEGF receptors. Studies using KDR and Flt1 stably transfected endothelial cell lines have shown that these two receptors exhibit different affinities to VEGF and mediate different responses. In response to VEGF, KDR expressing cells show striking changes in cell morphology, actin reorganization and membrane ruffling, chemotaxis and mitogenicity. Flt1 expressing cells lack such responses. Both KDR and Flt1 are phosphorylated in response to VEGF, however, KDR is much more efficient.[9] KDR/Flk1 does not respond to placental growth factor (PlGF), a VEGF related growth factor, while Flt1 binds PlGF specifically. The expression pattern of the two receptors is somewhat different. Flt1 is predominately expressed in human placenta and human vascular endothelial cells, while KDR is more widely expressed in all vessel-derived endothelial cells but low in human and fetal bovine placenta.[10] Both VEGF receptors (KDR and Flt1) are upregulated in human fetal and adult kidney.[11]

Antibodies that react specifically with VEGF receptors are useful for the study of the specific differential tissue expression and intracellular localization of the receptor in normal and neoplastic tissue.

Reagents
The product is supplied as mouse hybridoma cell culture supernatant, containing 15% fetal bovine serum and 15 mM sodium azide as a preservative.

Precautions and Disclaimer
Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability
For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile
A minimum working dilution of 1:100 is determined by indirect immunoperoxidase staining of frozen sections of human placenta.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Plouet, J., et al., EMBO J., **8**, 3801 (1989).
2. Keck, P.J., et al., Science, **246**, 1309 (1989).
3. Ferrara, N., et al., J. Cell Biochem., **47**, 211 (1991).
4. Vaisman, N., et al., J. Biol. Chem., **265**, 19461 (1990).
5. de Vries, C., et al., Science, **255**, 989 (1992).
6. Terman, B.I., et al., Biochem. Biophys. Res. Commun., **187**, 1579 (1992).
7. Hanahan, D., Science, **277**, 48 (1997).
8. Sait, S.N., et al., Cytogenet. Cell. Genet., **70**, 145 (1995).
9. Waltenberger, J., et al., J. Biol. Chem., **269**, 26988 (1994).
10. Barleon, B., et al., J. Cell. Biochem., **54**, 56 (1994).
11. Simon, M., et al., J. Am. Soc. Nephrol., vol. **9**, in press (1998).

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