

Product Information

Monoclonal Anti-Vascular Endothelial Growth Factor Receptor-2 clone KDR-1

produced in mouse, ascites fluid

Catalog Number **V9134**

Synonym: Anti-VEGF R-2

Product Description

Monoclonal Anti-Vascular Endothelial Growth Factor Receptor-2 (mouse IgG1 isotype) is derived from the KDR-1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Purified recombinant human extracellular VEGF receptor-2 (KDR) was used as the immunogen. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-Vascular Endothelial Growth Factor Receptor-2 reacts specifically with human VEGF receptor-2 and does not recognize VEGF Receptor 1 (flt1 receptor). The product is useful in ELISA and immunohistochemistry on formalin-fixed frozen sections.

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 mitogenic 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 (110 kDa) which can be found on the surface of various endothelial cells.⁴ VEGF binds to two structurally similar receptor tyrosine kinases; Flt1⁵ (fms-like tyrosine kinase 1) also known as VEGF-R1 and KDR⁶ (kinase-insert domain containing receptor) known as VEGF-R2. 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 for PDGF receptor and c-kit.⁷

The extracellular domain of KDR/Flk1 and Flt1 (~90 kDa), has seven immunoglobulin-like domains and belongs to the class V RTKs. This family also includes Flt4, which 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. KDR expressing cells show striking changes in cell morphology, actin reorganization and membrane ruffling, chemotaxis and mitogenicity in response to VEGF, while Flt1 expressing cells lack such responses. Both KDR and Flt1 are phosphorylated in response to VEGF, however KDR phosphorylation is much more efficient.⁸ 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.⁹ Antibodies that react specifically with VEGF receptor 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 provided as ascites fluid with 15 mM sodium azide as a preservative.

Precautions

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing, or 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 1:800 is determined by immunoperoxidase staining of frozen human placenta sections.

Note: In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

References

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