Mouse VEGF (164 aa)
research grade

Contents

1. Description

Products Mouse VEGF (164 aa), research grade.

Recombinant mouse vascular endothelial growth factor.

Content in µg	Order no.
5	130-094-086
20	130-094-087

Biological activity The ED_{50} is ≤5 ng/mL corresponding to an activity of ≥2×10^5 U/mg.

▲ **Note:** The ED_{50} is determined by proliferation assay using human umbilical vein endothelial cells.

Primary structure Two identical, glycosylated covalenty-linked polypeptide chains without N-terminal methionine (164 amino acid residues each).

Molecular mass 38.4 kDa (dimer).

Source Produced in Insect cells.

Product format Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer None.

Purity >95% as determined by SDS-PAGE analysis.

Endotoxin level Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage Lyophilized Mouse VEGF (164 aa), research grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.

Reconstitution It is recommended to reconstitute lyophilized Mouse VEGF (164 aa), research grade with deionized sterile-filtered water to a final concentration of 0.05–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

1.1 Background information

Vascular endothelial growth factor (VEGF), a disulfide-linked homodimer, also known as VEGF-A, belongs to the platelet-derived growth factor superfamily. VEGF is secreted by vascular smooth muscle cells upon hypoxic conditions and promotes angiogenesis and vasculogenesis, vascular permeability, and inhibition of apoptosis, through the binding to two cell surface receptors, VEGFR1 (Flt-1) and VEGFR2 (KDR/Flk-1), and other co-receptors, which are expressed mainly on endothelial cells and immune cells. VEGFR2 mediates almost all observed endothelial responses to VEGF, while Neuropilin-1 acts as co-receptor for the VEGF 165 aa isoform and enhances its binding to VEGFR2 and its biological activity. The VEGF/VEGFR system supports initiation of inflammation, inducing migration of monocytes and macrophages, but also acts on neurons and kidney epithelial cells. Moreover, VEGF contributes to tumor growth and metastasis formation, and is crucial during embryonic development and wound healing. Alteration in VEGF/VEGFR pathways have been associated with diseases, such as cancer, age-related macular degeneration, preeclampsia, rheumatoid arthritis, and neuronal disorders, such as amyotrophic lateral sclerosis. Several isoforms are generated as a result of alternative splicing, including the soluble isoforms VEGF 121 aa and VEGF 165 aa in human, and VEGF 164 aa isoform in mouse.

1.2 Applications

Mouse VEGF (164 aa) can be used for a variety of applications, including:

- Proliferation of endothelial cells.
- Promotion of endothelial cell migration.
- Chemo-attractant function, inducing migration of monocytes and osteoblasts.
- Increasing the release of von Willebrand factor from endothelial cells and metallo-proteinases activity.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

1. Waldner, M. J. *et al.* (2010) VEGF receptor signaling links inflammation and tumorigenesis in colitis-associated cancer. J. Exp. Med. 207 (13): 2855–2868.

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