Miltenyi Biotec

Human VEGF (121 aa)
research grade

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1. Description

Products

Human VEGF (121 aa), research grade.

Recombinant human vascular endothelial growth factor (121 aa).

Content in µg	Order no.
10	130-108-956
100	130-127-426

Biological activity

The ED_{50} is ≤0.4 ng/mL corresponding to an activity of ≥2.5×10^6 U/mg.

▲ **Note:** The ED_{50} is determined by the dose-dependent stimulation of human umbilical vein endothelial cells (HUVEC).

Primary structure

Two identical non-glycosylated polypeptide chains without N-terminal methionine (121 amino acid residues each).

Molecular mass

28.4 kDa (dimer).

Source

Produced in *E. coli*.

Product format

Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer

None.

Purity

>97% as determined by SDS-PAGE analysis.

Endotoxin level

Low endotoxin (<1 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage

Lyophilized Human VEGF (121 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 Human VEGF (121 aa), research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 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. It signals through the binding to two cell surface receptors, either VEGFR1 (Flt-1) or VEGFR2 (KDR/Flk-1), and other co-receptors, which are expressed mainly on endothelial cells and immune cells. VEGFR2 appears to mediate almost all observed endothelial responses to VEGF, whereas the function of VEGFR1 is less described. 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

Human VEGF (121 aa) may be used for a variety of applications, including:

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

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

Refer to www.miltenyibiotec.com for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com/local to find your nearest Miltenyi Biotec contact.

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