Cytokines

Human Recombinant VEGF-121, ACF

Vascular endothelial growth factor,
animal component-free

Catalog # 78158	10 µg
78158.1	100 µg
78158.2	1000 µg

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Product Description

Vascular endothelial growth factor (VEGF)-121 is a naturally-occurring VEGF-A splice variant involved in embryonic vasculogenesis and angiogenesis. VEGF binds to VEGF receptor (VEGFR)-1 and VEGFR-2, and activates Raf/MEK/ERK and PI3K/AKT pathways. VEGF exists in multiple isoforms that result from alternative splicing of VEGF mRNA in the terminal exon. Proximal splice-site selection in exon 8 results in pro-angiogenic VEGFxxx isoforms (xxx is the number of amino acids), whereas distal splice-site selection results in anti-angiogenic VEGFxxxb isoforms (Nowak et al.). VEGF-121 is released as a freely diffusible protein by a variety of normal and transformed cells. It plays an important role in neurogenesis both in vitro and in vivo (Storkebaum et al.). It has neurotrophic effects on neurons of the central nervous system and promotes growth and survival of dopaminergic neurons and astrocytes. VEGF also promotes growth and survival of vascular endothelial cells, monocyte chemotaxis, and colony formation by granulocyte-macrophage progenitor cells (Ferrara et al.). VEGF-121 contains two polypeptide chains of 121 amino acids each. This product is animal component-free.

Product Information

Alternative Names:	MGC70609, MVCD-1, Vascular endothelial growth factor, Vascular endothelial growth factor 2, Vascular endothelial growth factor A, Vascular permeability factor, VEGF-A, VPF
Accession Number:	P15692-9
Amino Acid Sequence:	MAPMAEGGGQ NHHEVVKFMD VYQRSYCHPI ETLVDIFQEY PDEIEYIFKP SCVPLMRCGG CCNDEGLECV PTEESNITMQ IMRIKPHQGQ HIGEMSFLQH NKCECRPKKD RARQEKCDKP RR
Predicted Molecular Mass:	14.2 kDa monomer; 28.4 kDa dimer
Species:	Human
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid
Source:	*E. coli*

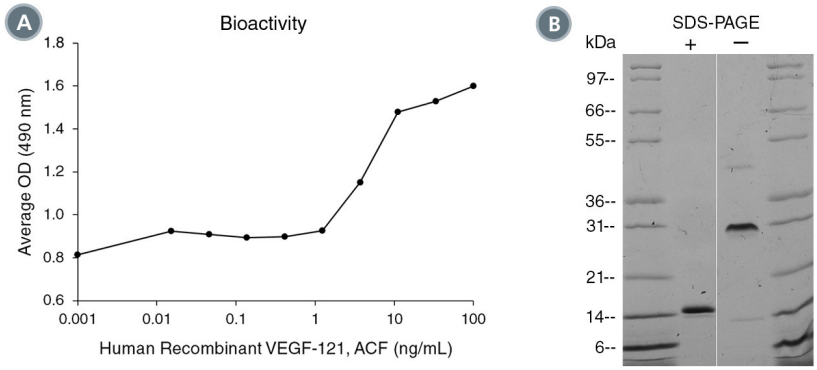
Specifications

Activity:	The specific activity is ≥ 2.0 x 10^5 units/mg (EC50 ≤ 5 ng/mL), as determined by a cell proliferation assay using human umbilical vein endothelial cells (HUVECs).
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20 to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant VEGF-121, ACF was tested by the ability to promote the proliferation of HUVECs. Cell proliferation was measured after 88 hours of culture. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the example above is 4.02 ng/mL.

(B) Human Recombinant VEGF-121, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. The predicted molecular mass of Human Recombinant VEGF-121, ACF is 28.4 kDa (14.2 kDa per monomer).

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines, or contact us at techsupport@stemcell.com.

References

Ferrara N et al. (2003) The biology of VEGF and its receptors. Nat Med 9(6): 669–76.
Nowak DG et al. (2008) Expression of pro- and anti-angiogenic isoforms of VEGF is differentially regulated by splicing and growth factors. J Cell Sci 121(Pt 20): 3487–95.
Storkebaum E et al. (2004) VEGF: once regarded as a specific angiogenic factor, now implicated in neuroprotection. Bioessays 26(9): 943–54.