abcam

Product datasheet

Recombinant human VEGFA protein ab53824

3 Images

Description

Product name	Recombinant human VEGFA protein
Biological activity	The ED_{50} for stimulation of 3H-thymidine incorporation and cell proliferation by human umbilical vein endothelial cells for VEGF has been determined to be in the range of 10 ng/ml. Specific activity: 2.5 x 10^5 units/mg.
Purity	> 95 % SDS-PAGE. Purity: 95%, by SDS-PAGE and visualised by silver stain Endotoxin level: < 0.1 ng per ug of VEGF
Expression system	Escherichia coli
Protein length	Full length protein
Animal free	No
Nature	Recombinant
Species	Human

Specifications

Our **Abpromise guarantee** covers the use of **ab53824** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	SDS-PAGE
Form	Lyophilized
Additional notes	A vascular endothelial growth factor (VEGF) mRNA species containing exons 1–6 and 8 of the VEGF gene was found to be expressed as a major VEGF mRNA form in several cell lines derived from carcinomas of the female reproductive system. This mRNA is predicted to encode a VEGF form of 145 amino acids (VEGF145). VEGF145 produced in insect cells is a homodimeric, 20,5 kDa protein belonging to the VEGFA family. Recombinant VEGF145 (ab53824) induced the proliferation of vascular endothelial cells and promoted angiogenesis in vivo. VEGF145 binds to the KDR/flk-1 receptor and to heparin. VEGF145 does not bind to two additional endothelial cell surface receptors that are recognized by VEGF165. VEGF145 binds efficiently to ECM becoming active. Binding of VEGF145 to ECM was not affected by heparinase digestion. Therefore, it has a unique combination of biological properties distinct from those of previously characterized VEGF species.

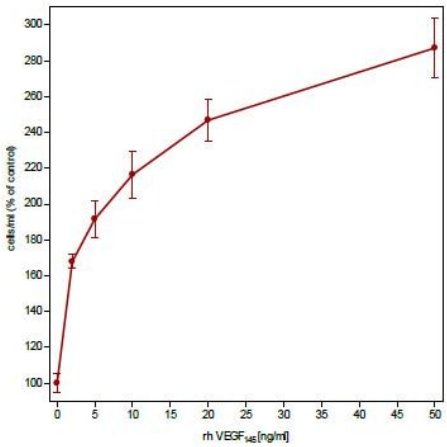
Preparation and Storage

Stability and Storage	Shipped at 4°C. Upon delivery aliquot and store at -20°C or -80°C. Avoid repeated freeze / thaw cycles. Constituent: 0.3% Acetic acid This product is an active protein and may elicit a biological response in vivo, handle with caution.
Reconstitution	The lyophilised VEGF is soluble in water and most aqueous buffers. It should be reconstituted in PBS or medium containing at least 0.1% human or bovine serum albumin to a concentration not lower than 50 µg/ml.

General Info

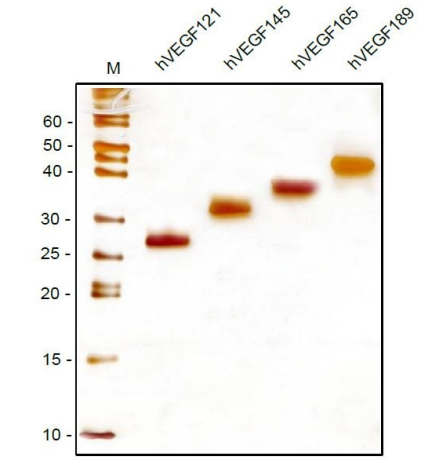
Function	Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. Induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis and induces permeabilization of blood vessels. Binds to the FLT1/VEGFR1 and KDR/VEGFR2 receptors, heparan sulfate and heparin. NRP1/Neuropilin-1 binds isoforms VEGF-165 and VEGF-145. Isoform VEGF165B binds to KDR but does not activate downstream signaling pathways, does not activate angiogenesis and inhibits tumor growth.
Tissue specificity	Isoform VEGF189, isoform VEGF165 and isoform VEGF121 are widely expressed. Isoform VEGF206 and isoform VEGF145 are not widely expressed.
Involvement in disease	Defects in VEGFA are a cause of susceptibility to microvascular complications of diabetes type 1 (MVCD1) [MIM:603933]. These are pathological conditions that develop in numerous tissues and organs as a consequence of diabetes mellitus. They include diabetic retinopathy, diabetic nephropathy leading to end-stage renal disease, and diabetic neuropathy. Diabetic retinopathy remains the major cause of new-onset blindness among diabetic adults. It is characterized by vascular permeability and increased tissue ischemia and angiogenesis.
Sequence similarities	Belongs to the PDGF/VEGF growth factor family.
Cellular localization	Secreted. VEGF121 is acidic and freely secreted. VEGF165 is more basic, has heparin-binding properties and, although a signicant proportion remains cell-associated, most is freely secreted. VEGF189 is very basic, it is cell-associated after secretion and is bound avidly by heparin and the extracellular matrix, although it may be released as a soluble form by heparin, heparinase or plasmin.

Images



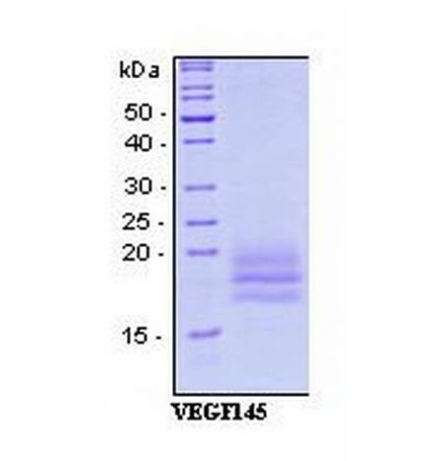
Functional Studies - Recombinant human VEGFA protein (ab53824)

VEGF145-induced proliferation of primary human dermal lymphatic endothelial cells (HDLEC). HDLECs were stimulated with increasing amounts of human VEGF145.



SDS-PAGE - Recombinant human VEGFA protein (ab53824)

SDS-PAGE analysis of recombinant human VEGF-A isoforms produced in E. coli. Samples were loaded under non-reducing conditions in 15% SDS-polyacrylamide gel and stained with Silver stain.



SDS-PAGE - Recombinant human VEGFA protein (ab53824)

SDS-PAGE page analysis of ab53824

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