PRODUCT INFORMATION

VEGF-C (human, recombinant)

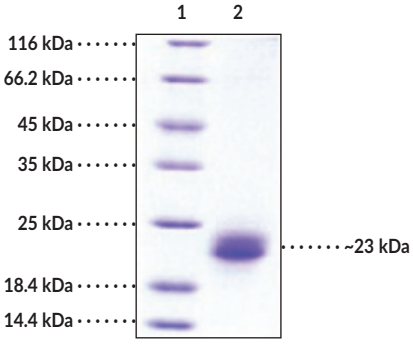
Item No. 32054

Overview and Properties

Synonyms:	FLT4-L, FLT4 Ligand, Vascular Endothelial Growth Factor C
Source:	Active recombinant human C-terminal His-tagged VEGF-C expressed in HEK293 cells
Amino Acids:	103-227
Uniprot No.:	P49767
Molecular Weight:	15.5 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4, with 5% trehalose, 5% mannitol, and 0.01% Tween 80
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Bioactivity:	Measured by its binding ability in a binding assay. See figures for details

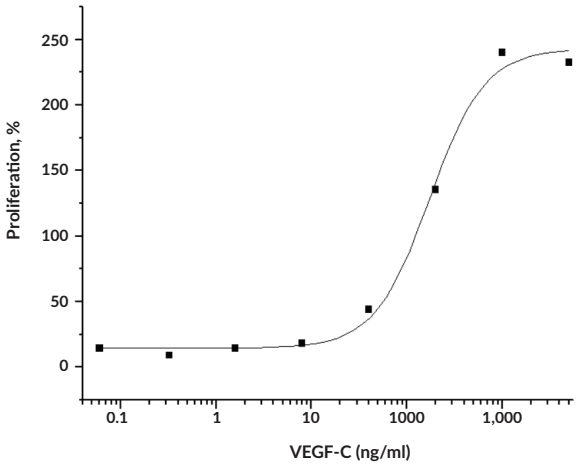
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: VEGF-C

SDS-PAGE Analysis of VEGF-C. This protein has a calculated molecular weight of 15.5 kDa. It has an apparent molecular weight of approximately 22 to 24 kDa by SDS-PAGE under reducing conditions due to glycosylation.



Cell Proliferation using HUVECs. The ED_{50} for this effect is typically 0.1 - 0.5 µg/ml.

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Description

VEGF-C is a member of the PDGF/VEGF family of growth factors that promotes lymphangiogenesis.[1] VEGF-C exists as a secreted homodimer composed of a central VEGF homology domain that contains the receptor binding region and is flanked by N- and C-terminal propeptides, which are proteolytically cleaved by furin and ADAMTS3 or plasmin to generate the mature, active protein.[2,3] VEGF-C is produced by macrophages, fibroblasts, smooth muscle cells, and tumor cells.[3] *VEGFC* expression is upregulated by stimulation with IL-1β, TNF-α (Item Nos. 32020 | 32069), PDGF, TGF-β, or EGF (Item Nos. 32057 | 32025) and downregulated by dexamethasone (Item No. 11015).[3,4] Binding of VEGF-C to its receptors, VEGFR2 and VEGFR3, which are expressed by endothelial cells, stimulates the migration, proliferation, and survival of endothelial cells and increases vascular permeability.[3] VEGF-C induces angiogenesis in chick embryo chorioallantoic membranes and stimulates proliferation and migration of porcine aortic endothelial cells *in vitro*.[5] Genome-wide deletion of *Vegfc* in mice induces embryonic edema and defects in lymphatic vascular development and is perinatal lethal.[6] Increased VEGF-C tumor levels are positively correlated with poor prognosis, decreased overall survival, and resistance to hormone therapy in patients with breast cancer.[7] *VEGFC* SNPs have been found in patients with non-small cell lung cancer (NSCLC), as well as colorectal or prostate cancer. Cayman's VEGF-C (human, recombinant) protein can be used for binding and cell-based assay applications. This protein consists of 136 amino acids, has a calculated molecular weight of 15.5 kDa, and a predicted N-terminus of Thr103 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is approximately 22 to 24 kDa due to glycosylation.

References

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2. Jha, S.K., Rauniyar, K., Karpanen, T., *et al.* Efficient activation of the lymphangiogenic growth factor VEGF-C requires the C-terminal domain of VEGF-C and the N-terminal domain of CCBE1. *Sci. Rep.* **7(1)**, 4916 (2017).
3. Narko, K., Enholm, B., Mäkinen, T., *et al.* Effect of inflammatory cytokines on the expression of the vascular endothelial growth factor-C. *Int. J. Exp. Path.* **80(3)**, 109-112 (1999).
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5. Cao, Y., Linden, P., Farnebo, J., *et al.* Vascular endothelial growth factor C induces angiogenesis *in vivo*. *Proc. Natl. Acad. Sci. USA* **95(24)**, 14389-14394 (1998).
6. Karkkainen, M.J., Haiko, P., Sainio, K., *et al.* Vascular endothelial growth factor C is required for sprouting of the first lymphatic vessels from embryonic veins. *Nat. Immunol.* **5(1)**, 74-80 (2004).
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