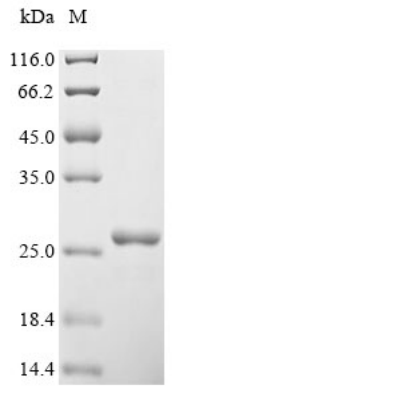
Recombinant Human Vascular endothelial growth factor A (VEGFA)

Product Code	CSB-YP025833HU
Abbreviation	Recombinant Human VEGFA protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P15692
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Human Vascular endothelial growth factor A(VEGFA)
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	APMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVDIFQEYPDEIEYIFKPSCVPL MRCGGCCNDEGLECVPTEESNITMQIMRIKPHQGQHIGEMSFLQHNKCECRP KKDRARQEKKSVRGKGKGQKRKRKKSRYKSWSVYVGARCCLMPWSLPGPH PCGPCSERRKHLFVQDPQTCKCSCKNTDSRCKARQLELNERTCRCDKPRR
Research Area	Cancer
Source	Yeast
Target Names	VEGFA
Expression Region	27-232aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 5°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	25.9 kDa
Protein Length	Full length
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

To prepare the recombinant human VEGFA protein with an N-terminal 6xHis tag, the VEGFA gene (27-232aa) is co-cloned into a plasmid with the tag gene. The constructed plasmids are transfected into yeast cells, which are induced to express the target protein after adding IPTG. The cells are lysed to release the recombinant VEGFA protein, which is purified using Ni-NTA affinity chromatography, where the His tag allows for selective binding to the nickel matrix. Following elution, SDS-PAGE analysis shows the protein to be highly pure, with a purity exceeding 90%.

Human VEGFA is a critical cytokine particularly involved in angiogenesis, which is the formation of new blood vessels from pre-existing ones. VEGFA plays a fundamental role in embryonic development, wound healing, and the pathogenesis of several diseases, including cancer and cardiovascular disorders.

VEGFA is primarily produced by endothelial cells. Its expression is regulated by hypoxia and other stimuli, which enhance its production to promote angiogenesis in response to tissue oxygen demands [1][2]. The signaling pathway of VEGFA is mediated through its interaction with two main receptors: VEGFR1 (Flt-1) and VEGFR2 (KDR), which are expressed on endothelial cells. This interaction triggers a cascade of intracellular signaling that leads to endothelial cell proliferation, migration, and increased vascular permeability [3][4].

VEGFA is often overexpressed in cancer, facilitating tumor growth and metastasis by promoting neovascularization. This is particularly evident in solid tumors, where the demand for oxygen and nutrients increases as the tumor mass expands [5][6]. Elevated levels of VEGFA in the serum have been associated with poor prognosis in various malignancies, including breast and prostate cancer [7][8]. Moreover, VEGFA's role in enhancing vascular permeability contributes to the formation of ascites in ovarian cancer, highlighting its importance in tumor microenvironment dynamics [9].

VEGFA is crucial in reproductive biology, particularly in trophoblast development during pregnancy. It is produced by both trophoblasts and the endometrium, playing a vital role in placental angiogenesis and the establishment of maternal-fetal circulation [10][11]. Abnormal levels of VEGFA during pregnancy can lead to complications such as preeclampsia, underscoring its significance in vascular

health [11].

References:

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Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.