ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Rat Recombinant VEGF164 (VEGF-A) Protein (E. coli), biologically active

Cat # VEGF33-R-10 Recombinant Rat VEGF164 protein **SIZE**: ,10 ug

Cat # VEGF33-R-100 Recombinant Rat VEGF164 protein **SIZE**: ,100 ug

FORM: Soln Lyophilized **Storage** : Store at -20oC.

Embryonic vascular system undergoes a series of complex, highly regulated series of events involving differentiation, migration and association of primitive endothelial cells. This process is termed vasculogenesis. Study of tumor angiogenesis has led to the identification of several proteins including basic fibroblast growth factor (bFGF) and vascular endothelial growth factor. VEGF acts by interacting with a family of largely endothelial-specific receptor tyrosine kinases that includes VEGFR-1 (flt-1), VEGFR-2 (flk-1/KDR), and VEGFR-3/Flt-4. Disruption of VEGFRs interferes with differentiation of endothelial cells and it is lethal for the embryo.

VEGF is a heparin-binding glycoprotein that is secreted as a homodimer of 45 kDa. There are several splice variants of VEGF-A. The major ones include: 121, 165, 189 and 206 amino acids (aa), each one comprising a specific exon addition. 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. VEGF165 is the most predominant protein, but transcripts of VEGF121 may be more abundant. VEGF206 is rarely expressed and has been detected only in fetal liver. Recently, other splice variants of 145 and 183 aa have also been described. The 165, 189 and 206 aa splice variants have heparin-binding domains, which help anchor them in extracellular matrix and are involved in binding to heparin sulfate and presentation to VEGF receptors. This is a key factor for VEGF potency (i.e., the heparin-binding forms are more active). VEGF-A is regulated by growth factors, cytokines, gonadotropins, nitric oxide, hypoxia, hypoglycemia and oncogenic mutations.

Form, Storage, and Reconstitution

Recombinant Rat VEGF produced in E.Coli is a double, non-glycosylated, polypeptide chain containing 164 amino acids and having a molecular mass of 38417 Dalton.

Rat VEGF164 **(cat #VEGF33-R-10 and # VEGF33-R-100)** was produced in E. coli and purified to >95% by SDS-PAGE and HPLC. Less than 1% as determined by silver-stained SDS-PAGE gel analysis. Endotoxin level is <0.1 ng/ug (<1 EU/ug) protein. It is supplied as lyophilized powder with no preservatives. The lyophilized protein is stable at room temperature but it is recommend to store desiccated at -20oC.

The lyophilized VEGF is soluble in water and buffers. It should be reconstituted in water or PBS at a concn of 0.1-1 mg/ml and stored in suitable aliquots at -20oC or below. Add 100 ul water or buffer (100 ug/ml concn), lightly vortex, and mix for 15 min at room temp. The vial should be centrifuged briefly to recover solution at the bottom. It is also possible to reconstitute the protein in PBS or other buffers containing 0.1% BSA as a carrier protein. The solution can be sterile filtered if necessary.

Biological activity

Determined by the dose-dependent stimulation of the proliferation of human umbilical vein endothelial cells (HUVEC) using a concentration range of 10-100 ng/ml.

General References:

Keck PJ (1989) Science 246, 1309-1312; Leung DW (1989) Science 246, 1306-1309; Tischer E (1991) JBC 266, 11947-11954; Houck, KA (1991) Mol. Endocrinol. 5, 1806-1814; Poltorak Z (1997) JBC 272, 7151-7158; Lei J (1998) BBA 1443, 400-406; Whittle C (1999) Clin. CSci. 97, 303-312

*This product is for In vitro research use only.

Rat and Human VEGF-A, C and antibodies

VEGF33-R-10 70312A

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