Recombinant Mouse $VEGF_{188}$

Catalog Number: 7916-MV/CF

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived Ala27-Arg214 Accession # Q00731
N-terminal Sequence Analysis	Ala27
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	22.1 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	28-30 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using HUVEC human umbilical vein endothelial cells. Conn, G. *et al.* (1990) Proc. Natl. Acad. Sci. USA **87**:1323. The ED_{50} for this effect is 7-35 ng/mL.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in HCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in 4 mM HCl.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Vascular endothelial growth factor (VEGF or VEGF-A), also known as vascular permeability factor (VPF), is a potent mediator of both angiogenesis and vasculogenesis in the fetus and adult (1-3). It is a member of the PDGF family that is characterized by a cystine knot structure formed by eight conserved cysteine residues (4). Alternate splicing produces isoforms including 121, 145, 165, 183, 189, and 206 amino acid (aa) forms in humans, with 120, 164 and 188 aa isoforms found in mouse (1-4). Mouse $VEGF_{188}$ shares 98% aa sequence identity with the appropriate isoform in rat, and 89% with human, bovine and canine VEGF. While isoforms $VEGF_{120}$ and $VEGF_{121}$ are freely diffusible, $VEGF_{188}$, $VEGF_{189}$ and $VEGF_{206}$ contain the highest number of basic aa, which bind heparin and tether these isoforms to the cell surface and extracellular matrix (3-5). Expression of $VEGF_{188/189}$ is particularly high in the embryonic lung, where it is produced by type II alveolar epithelia (6). It is thought to be involved in lung, heart and liver vasculogenesis (5, 6). It is not sufficient for vasculogenesis during bone development, but may play a role in bone repair (5, 7). Tumor cell production of $VEGF_{188/189}$ correlates with poor prognosis (5). VEGF binds the type I transmembrane receptor tyrosine kinases VEGF R1 (also called Flt-1) and VEGF R2 (Flk-1/KDR) on endothelial cells (4). Although affinity is highest for binding to VEGF R1, VEGF R2 appears to be the primary mediator of VEGF angiogenic activity (3, 4). $VEGF_{188}$ binds VEGF R2 best when it is cleaved by uPA or plasmin into a 110-111 aa form (4, 5). Human $VEGF_{165}$ and $VEGF_{189}$ also bind the semaphorin receptor Neuropilin-1 (8, 9).

References:

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