Recombinant Mouse VEGF-B 167

Catalog Number: 2595-VE

DESCRIPTION

Source	*E. coli*-derived Pro22-Lys188 Accession # AAC52553
N-terminal Sequence Analysis	Pro22
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	19 kDa (monomer)

SPECIFICATIONS

Activity	Measured by its binding ability in a functional ELISA. Immobilized rrNeuropilin-1/Fc Chimera at 4 µg/mL (100 µL/well) can bind rmVEGF-B_{167} with a linear range of 0.8-50 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 Acetonitrile and TFA with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile 4 mM HCl containing at least 0.1% human or bovine serum albumin.
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 B (VEGF-B; also known as VFR) is a member of the VEGF-PDGF supergene family of growth factor molecules (1 - 4). Five mouse members have been identified, including VEGF-A, -B, -C, -D, and P*l*GF(-2) (1, 5). VEGF family members are disulfide-linked homo- and heterodimeric proteins that are important regulators of vasculogenesis and lymphangiogenesis. Mouse VEGF-B has two isoforms, a 32 kDa single chain and a 21 kDa single chain form (6, 7). The long form (VEGF-B_{186}) is 207 amino acids (aa) in length, with a 21 aa signal sequence and a 186 aa mature region. The short form (VEGF-B_{167}) is 188 aa in length, with a 21 aa signal sequence and a 167 aa mature segment. Each mature isoform shows the same N-terminal 94 aa that contains a cysteine knot VEGF homology domain (6 - 8). VEGF-B_{186} is O-glycosylated; VEGF-B_{167} is not. VEGF-B_{167} binds heparin; VEGF-B_{186} does not. Thus, VEGF-B_{186} is secreted and freely diffusible in tissues (7). However, the VEGF-B_{167} isoform is the predominant form in tissue (9). Mouse VEGF-B_{186} is 93% and 87% aa identical to bovine and human VEGF-B_{186}, respectively; mouse VEGF-B_{167} is 90% and 88% aa identical to bovine and human VEGF-B_{167}, respectively . The mouse VEGF-B_{167} homodimer is 42 kDa in size, while the VEGF-B_{186} homodimer is 62 kDa in size. Unlike VEGF$_{167}$, VEGF-B_{186} undergoes proteolytic processing that creates a partially processed 48 kDa homodimer and a fully processed 32 kDa homodimer. Processing appears to occur at Arg127 of the mature form (10). Both forms of VEGF-B can heterodimerize with VEGF (7). Both VEGF-B isoforms bind to VEGF receptor 1 (VEGF R1), but not VEGF R2 or VEGF R3 (11). VEGF-B_{167} also binds neuropilin-1, but only the 127 aa processed form of VEGF-B_{186} binds neuropilin-1 (10). As a dimer, full length VEGF-B_{186} does not interact with neuropilin-1, while any dimer that contains the processed VEGF-B_{127} subunit will interact with neuropilin-1 (10). The importance of differential neuropilin binding is unclear. VEGF-B deficient mice display an atrial conduction deficit (12). On endothelial cells, ligation of VEGF R1 by VEGF-B has been shown to regulate the expression and activity of urokinase type plasminogen activator and plasminogen activator inhibitor 1 (11).

References:

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