Recombinant Mouse VEGF-B 186

Catalog Number: 767-VE

DESCRIPTION

Source	*Spodoptera frugiperda*, *Sf* 21 (stably transfected)-derived Gln20-Ala207 & Gln20-Arg148 Accession # P49766
N-terminal Sequence Analysis	Gln20
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	15.2 kDa

SPECIFICATIONS

SDS-PAGE	28 kDa and 17 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. Immobilized rmFlt-1/Fc Chimera at 1 µg/mL (100 µL/well) can bind rmVEGF-B_{186} with a linear range of 0.1-10 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 10 µg/mL in sterile PBS 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/GF(-2) (1, 5). VEGF family members are disulfide-linked homo- and heterodimeric proteins that are important regulators of vasculogenesis and lymphangiogenesis. Two isoforms of mouse VEGF-B are produced by alternative splicing (6, 7). The long form ($VEGF_{186}$) is 207 amino acids (aa) in length, with a putative 21 aa signal sequence and a 186 aa (32 kDa) mature region. The short form ($VEGF_{167}$) is 188 aa in length, with a 21 aa signal sequence and a 167 aa (21 kDa) mature segment. The two isoforms share the same N-terminal 94 aa residue containing the cysteine knot VEGF homology domain (6 - 8). $VEGF_{186}$ is O-glycosylated; $VEGF_{167}$ is not. $VEGF_{167}$ binds heparin; $VEGF_{186}$ does not. Thus, $VEGF_{186}$ 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} shares 93% and 87% aa identity with bovine and human VEGF-B_{186}, respectively. Mouse VEGF-B_{167} also shares 90% and 88% aa identity with bovine and human VEGF-B_{167}, respectively. Unlike $VEGF_{167}$, VEGF-B_{186} can undergo proteolytic processing to generate a partially processed 48 kDa heterodimer (16 kDa and 32 kDa) and a fully processed 32 kDa homodimer (two 16 kDa). Processing appears to occur at Arg 127 of the mature protein (10). VEGF-B can heterodimerize with VEGF (7). Both VEGF-B isoforms can 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, the 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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