Recombinant Human VEGF-B 167

Catalog Number: 751-VE

DESCRIPTION

Source	*E. coli*-derived human VEGF-B protein Pro22-Arg188 Accession # AAA91463
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 recombinant rat Neuropilin-1 Fc Chimera at 4 µg/mL (100 µL/well) can bind recombinant human VEGF-B_{167} with a linear range of 0.3-20 ng/mL.
Endotoxin Level	<0.10 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	Reconstitution in 4 mM HCl at 500 ug/mL.
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 vascular endothelial growth factor-related factor (VRF), is a member of the VEGF family of growth factors that share structural and functional similarity (1, 2). Five mammalian members, including VEGF-A, -B, -C, -D and PlGF, have been identified. VEGF family members are disulfide-linked dimeric proteins that are important regulators of physiological and pathological vasculogenesis, angiogenesis and lymphangiogenesis. VEGF-B is expressed in most tissues, especially in heart, skeletal muscle and pancreas. In many tissues, VEGF-B is co-expressed and can heterodimerize with VEGF (3). By alternative splicing, two isoforms of mature VEGF-B containing 167 or 186 amino acid (aa) residues exist (3, 4). The two VEGF-B isoforms have identical amino-terminal cysteine-knot VEGF homology domains but the carboxyl end of VEGF-B_{167} differs from that of VEGF-B_{186} by the presence of a highly basic cysteine-rich heparin binding domain. Whereas VEGF-B_{186} is a secreted diffusible protein, VEGF-B_{167} is sequestered into the cell matrix after secretion. Both VEGF-B isoforms bind VEGF receptor 1 (VEGF R1), but not VEGF R2 or VEGF R3 (5). 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. VEGF-B_{167} and a proteolytically processed form of VEGF-B_{186} (VEGF-B_{127}) also bind neuropilin-1 (NP-1), a type I transmembrane receptor for semaphorins/collapsins, ligands involved in neuron guidance (6). Besides VEGF-B, NP-1 has been shown to bind PLGF-2, $VEGF_{165}$ and VEGF R1 (6, 7). The many interactions of NP-1 with VEGF ligands and receptor suggests that NP-1 may function as a regulator of angiogenesis (7).

References:

1. Li, X. and U. Eriksson (2001) Int. J. Biochem Cell Biol. **33**:421.
2. Olofsson, B. *et al.* (1999) Curr. Opin. Biotechnol. **10**:528.
3. Olofsson, B. *et al.* (1996) Proc. Nat. Acad. Sci. USA **93**:2576.
4. Grimmond, S. *et al.* (1996) Benome Res. **6**:124.
5. Olofsson, B. *et al.* (1998) Proc. Nat. Acad. Sci. USA **95**:11709.
6. Makinen, T. *et al.* (1999) J. Biol. Chem. **274**:21217.
7. Fuh, G. *et al.* (2000) J. Biol. Chem. **275**:26690.

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