

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse VEGF-B ₁₆₇ in direct ELISAs and Western blots. In direct ELISAs, approximately 20% cross-reactivity with recombinant human (rh) VEGF-B ₁₆₇ , recombinant mouse (rm) VEGF-B ₁₈₆ , and rmVEGF-D is observed but no cross-reactivity with rmVEGF ₁₆₅ or rhVEGF-C is observed.
Source	Monoclonal Rat IgG _{2A} Clone # 128313
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant mouse VEGF-B ₁₆₇ Pro22-Gly171 Accession # P49766-2
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Western Blot	1 µg/mL	Recombinant Mouse VEGF-B ₁₆₇ (Catalog # 2595-VE)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 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/IGF(-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-B₁₈₆) is 207 amino acids (aa) in length, with a 21 aa signal sequence and a 186 aa mature region. The short form (VEGF-B₁₆₇) 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-B₁₈₆ is O-glycosylated; VEGF-B₁₆₇ is not. VEGF-B₁₆₇ binds heparin; VEGF-B₁₈₆ does not. Thus, VEGF-B₁₈₆ is secreted and freely diffusible in tissues (7). However, the VEGF-B₁₆₇ isoform is the predominant form in tissue (9). Mouse VEGF-B₁₈₆ is 93% and 87% aa identical to bovine and human VEGF-B₁₈₆, respectively; mouse VEGF-B₁₆₇ is 90% and 88% aa identical to bovine and human VEGF-B₁₆₇, respectively. The mouse VEGF-B₁₆₇ homodimer is 42 kDa in size, while the VEGF-B₁₈₆ homodimer is 62 kDa in size. Unlike VEGF₁₆₇, VEGF-B₁₈₆ 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-B₁₆₇ also binds neuropilin-1, but only the 127 aa processed form of VEGF-B₁₈₆ binds neuropilin-1 (10). As a dimer, full length VEGF-B₁₈₆ does not interact with neuropilin-1, while any dimer that contains the processed VEGF-B₁₂₇ 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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