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## Recombinant ov-HB-VEGF-E (Orf virus)

**Description:** A DNA sequence encoding the first 116 amino acid residue of Orf virus VEGF-E isolate D1701 (Dehio et al., 1999 EMBO J. 18:363-374; GenBank accession No. AF106020) was fused with a DNA sequence encoding to the C-terminal heparin binding domain of human VEGF<sub>165</sub>. The chimeric protein was expressed in insect cells using a baculovirus expression system.

Based on sequence similarity to VEGF-A, a gene encoding a VEGF homologue has recently been discovered in the genome of Orf virus (OV) (Lyttle et al., 1994 J. Virol 68:84-92). Different isolates of orf virus show significant amino acid sequence similarity to VEGF-A and described as a viral virulence factor that appear to be derived from captured host genes. All eight cysteine residues of the central cysteine knot motif characteristic of members of the VEGF family are conserved among other residues in the VEGF-E proteins (Dehio et al., 1999 EMBO J. 18:363-374; Wise et al., 1999 Proc. Natl. Acad. Sci USA 96:3071-3076). Alignment of all mammalian VEGF sequences indicated that VEGF-E is distinct from the previously described VEGFs but most closely related to VEGF-A. Like VEGF-A, VEGF-E was found to bind with high affinity to VEGF receptor-2 (KDR) resulting in receptor autophosphorylation, whilst in contrast to VEGF-A, VEGF-E and hb-VEGF-E can not bind to VEGF receptor-1 (Flt-1). Therefore VEGF-E is a potent angiogenic factor selectively binding to VEGF receptor-2/ KDR. Compared to human VEGF<sub>165</sub> this virus form has no heparin-binding domain and seems to be a freely secreted protein comparable to VEGF<sub>121</sub>. In order to compare this form with human VEGF<sub>165</sub>, an additional heparin-binding domain was engineered at the C-terminus to allow interaction with proteo-aminoglycans and heparan sulfate. These form is also able to interact with neuropilin-1.

|                          |   |
|--------------------------|---|
| <b>Source:</b>           | Insect cells                                      |
| <b>Molecular Weight:</b> | ~44 kDa   |
| <b>Purity:</b>           | > 90%, by SDS-PAGE and visualised by silver stain |
| <b>Endotoxin level:</b>  | < 0.1 ng per ug of VEGF-E                         |
| <b>Stabilizer:</b>       | none  |
| <b>Buffer:</b>           | 50 mM acetic acid                                 |
| <b>Formulation:</b>      | lyophilised                                       |

**Biological Activity:** Measured by its ability to stimulate 3H-thymidine incorporation in human macrovascular (HUVE) and microvascular (HDME) endothelial cells. The ED50 for this effect is typically 5-20 ng/mL.

**Reconstitution:** The lyophilised HB-VEGF-E is soluble in water and most aqueous buffers. The lyophilised HB-VEGF-E should be reconstituted in PBS or medium containing at least 0.1% human or bovine serum albumin to a concentration not lower than 50 µg/ml.

**Stability:** Lyophilised samples are stable for greater than six months at -20°C to -70°C. Reconstituted HB-VEGF-E should be stored in working aliquots at -20°C. **Avoid repeated freeze-thaw cycles!**

**Usage:** HB-VEGF-E is offered for research use. Not for drug use. **Not for human use!**

|                                  |                          |
|----------------------------------|--------------------------|
| <b>Catalogue number:</b> 300-046 | <b>Size:</b> 20 µg       |
|                                  | <b>Range:</b> 1-30 ng/ml |

**Literature:** [Dehio et al., 1999 EMBO J. 18:363-374; Lyttle et al., 1994 J. Virol 68:84-92; Wise et al., 1999 Proc. Natl. Acad. Sci USA 96:3071-3076; Heil et al., 2003 Angiogenesis 6:201-211]

**\*\* please note: always centrifuge vials before opening \*\***