

HB-EGF Protein, Human, Recombinant

General Information

Synonyms:	DTSF;DTR;HEGFL;heparin-binding EGF-like growth factor;DTS
Protein Construction:	A DNA sequence encoding the human HBEGF (Q99075) (Met 1-Leu 148) without the C-terminal propeptide (aa 149-208), was expressed and purified. Predicted N terminal: Asp 63
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	Q99075
Molecular Weight:	16.4 kDa (predicted)

QC Testing

Biological Activity:	Measured in a cell proliferation assay using Balb/C 3T3 mouse embryonic fibroblasts. The ED50 for this effect is typically 0.4-2ng/mL.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Heparin-binding EGF-like growth factor (HBEGF), a member of the EGF family of growth factors, exerts its biological activity through activation of the EGFR and other ErbB receptors. Soluble mature HBEGF is proteolytically processed from a larger membrane-anchored precursor and is a potent mitogen and chemotactic factor for fibroblasts, smooth muscle cells but not endothelial cells. HBEGF activates two EGF receptor subtypes, HER1 and HER4, and binds to cell surface HSPG. The transmembrane form of HBEGF is a juxtacrine growth and adhesion

factor and is uniquely the receptor for diphtheria toxin. Both forms of HB-EGF participate in normal physiological processes and pathological processes including tumor progression and metastasis, organ hyperplasia, and atherosclerotic disease. HBEGF participates in diverse biological processes, including heart development and maintenance, skin wound healing, eyelid formation, blastocyst implantation, the progression of atherosclerosis, and tumor formation, through the activation of signaling molecules downstream of ErbB receptors and interactions with molecules associated with HBEGF. tumor necrosis factor-alpha (TNF-alpha) and interleukin-1 beta markedly increased HB-EGF mRNA levels in HUVEC by 12- and 7-fold, respectively, and induction of the gene by TNF-alpha was both dose- and time-dependent.

Reference

Miyamoto S, et al. (2006) Heparin-binding epidermal growth factor-like growth factor as a novel targeting molecule for cancer therapy. *Cancer Sci.* 97(5): 341-7.

Raab G, et al. (1997) Heparin-binding EGF-like growth factor. *Biochim Biophys Acta.* 1333(3): 179-99.

Pathak BG, et al. (1995) Mouse chromosomal location of three EGF receptor ligands: amphiregulin (Areg), betacellulin (Btc), and heparin-binding EGF (Hegfl). *Genomics.* 28(1): 116-8.

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