

Background

Epiregulin is a member of the EGF family of growth factors which includes, among others, epidermal growth factor (EGF), transforming growth factor (TGF)-alpha, amphiregulin (ARG), HB (heparin-binding)-EGF, betacellulin, and the various heregulins. They are all synthesized as transmembrane precursors and converted to soluble forms by proteolytic cleavage. Epiregulin was originally purified from the mouse fibroblast-derived tumor cell line NIH3T3/T7 (1). The mouse Epiregulin cDNA encodes for a transmembrane precursor of 162 amino acid in length, with the mature soluble form comprising residues 56 - 101 (2). The mode of action of Epiregulin is similar to other EGF family members in that it binds to and activates the tyrosine-kinase, ErbB-family receptors (ErbB1 through B4) (3). Although it stimulates phosphorylation of all four receptors, it appears to interact primarily with ErbB1 and ErbB4. Epiregulin has the broadest specificity of the EGF-like ligands but seems to preferentially activate heterodimeric receptor complexes (4). Epiregulin exhibits a variety of biological effects. It was originally shown to both inhibit growth of several epithelial tumor cells and stimulate growth of fibroblasts and other types of cells (1). Epiregulin expression is upregulated in a number of carcinoma cell lines. It has also been shown to be an autocrine growth factor in human epidermal keratinocytes (5). Epiregulin has also been shown to play a role in the early steps of pregnancy, regulating attachment of the blastocyst to the uterine epithelium during the implantation process (6).

References:

1. Toyoda, H. *et al.* (1995) *J. Biol. Chem.* **270**:7495.
2. Toyoda, H. *et al.* (1995) *FEBS Lett.* **377**:403.
3. Komurasaki, T. *et al.* (1997) *Oncogene* **15**:2841.
4. Shelly, M. *et al.* (1998) *J. Biol. Chem.* **273**:10496.
5. Shirakata, Y. *et al.* (2000) *J. Biol. Chem.* **275**:5748.
6. Das, S.K. *et al.* (1997) *Dev. Biol.* **190**:178.

Description

Source	<i>E. coli</i> -derived Val56 - Leu101, with an N-term Met Accession # NP_031976
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	5.5 kDa

Specifications

Activity	Measured in a cell proliferation assay using Balb/3T3 mouse embryonic fibroblasts. Rubin, J.S. <i>et al.</i> (1991) <i>Proc. Natl. Acad. Sci. USA</i> 88 :415. The ED ₅₀ for this effect is typically 0.3 - 1 ng/mL.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

Preparation and Storage

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
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. <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. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

10/8/2009

FOR RESEARCH USE ONLY.
NOT FOR USE IN HUMANS.