

PRODUCT DESCRIPTION

Epidermal growth factor (EGF) is prototypic of a family of growth factors that are derived from membrane-anchored precursors. All members of this family are characterized by the presence of at least one EGF structural unit in their extracellular domain. The EGF structural unit is defined by the presence of a conserved six-cysteine motif that forms three disulfide bonds.

EGF is initially synthesized as a 130 kDa precursor transmembrane protein containing nine EGF units. The mature soluble EGF sequence corresponds to the EGF unit located proximal to the transmembrane domain. The purified recombinant human EGF containing 54 amino acid residues is the N-terminal methionyl form of natural mature EGF and has a predicted molecular mass of approximately 6 kDa.

A wide variety of *in vitro* and *in vivo* biological effects have been ascribed to EGF and other members of the EGF family. *In vitro*, EGF is a mitogen for fibroblasts, epithelial and endothelial cells, neuronal precursors, and promotes colony formation of epidermal cells in culture. *In vivo*, EGF induces epithelial development, promotes angiogenesis, and inhibits gastric acid secretion.

SOURCE

A DNA sequence encoding the mature human EGF protein (Asn 971 – Arg 1023; Accession #P01133)¹ was expressed in *E. coli*.

PURITY

Purity is greater than 97%, as determined by N-terminus analysis and SDS-PAGE and visualized by silver stain. Endotoxin level is <1.0 EU per 1 µg cytokine, as determined by the LAL method.

ACTIVITY

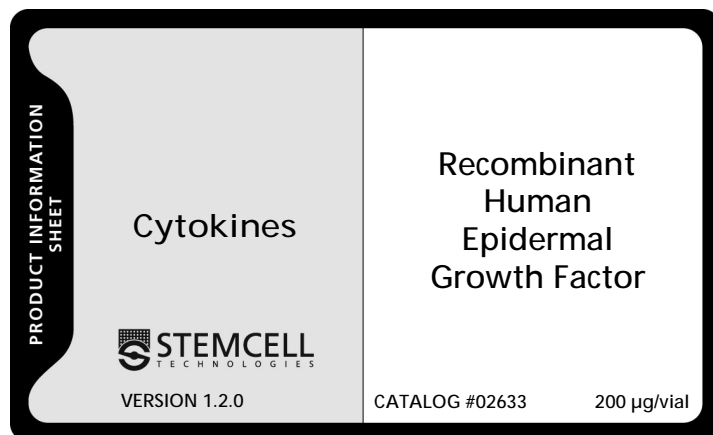
The biological activity of recombinant human EGF is measured by its ability to stimulate proliferation in an EGF-responsive mouse fibroblast cell line, Balb/3T3.² The ED₅₀ for this effect is typically 20 - 100 µg/mL.

FORMULATION

Recombinant human EGF is lyophilized from a 0.2 µm filtered solution in phosphate buffered saline (PBS) and is supplied carrier-free.

RECONSTITUTION

Reconstitute human EGF at a concentration greater than 10 µg/mL with sterile 10 mM acetic acid containing at least 0.1% human or bovine serum albumin.



STABILITY AND STORAGE

Lyophilized human EGF is stable for up to twelve months from date of receipt at -20°C to -70°C.

Reconstituted human EGF can be stored under sterile conditions at 2°C - 8°C for one month, or at -20°C to -70°C (in a manual defrost freezer) for three months without detectable loss of activity.

Avoid repeated freezing and thawing.

REFERENCES

1. Bell GI, Fong NM, Stempien MM, Wormsted MA, Caput D, Ku LL, Urdea MS, Rall LB, Sanchez-Pescador R: Human epidermal growth factor precursor: cDNA sequence, expression *in vitro* and gene organization. *Nucleic Acids Res* 14: 8427-8446, 1986
2. Rubin JS, Chan AM, Bottaro DP, Burgess WH, Taylor WG, Cech AC, Hirschfield DW, Wong J, Miki T, Finch PW, *et al.*: A broad-spectrum human lung fibroblast-derived mitogen is a variant of hepatocyte growth factor. *Proc Natl Acad Sci USA* 88: 415-419, 1991