Recombinant Human EGF Active

Human recombinant protein expressed in *Nicotiana benthamiana*

RF0102

Alternative Names: Urogastrone

Molecular Formula:C306H443N91O89S7

UniProtKB: P01133
p.I: 6,01

Available sizes: 1 µg, 10 µg, 100 µg, 250 µg, 500µg of active protein

Ext. Coeff. Abs (280nm) 0.1% (=1g/l) =2,672

Purity >97% by SDS-PAGE gel
Endotoxin Level : < 0.04 EU / µg protein (LAL method)

Molecular Weight:

Recombinant full length EGF is a 7 kDa globular protein containing 54 amino acid residues (amino acids 971 al 1023 P01133 (EGF_HUMAN) with His tag at N-terminal.

Source:

Human recombinant protein expressed in Nicotiana benthamiana. It is produced by transient expression in non-transgenic plants and is purified by standard protein purification methods. This product contains no animal–derived components or impurities. Animal Free product.

Sequence:

HHHHHHNSDSECPLSHDGYCLHDGVCMYIEALDKYACNCVVGY IGERCQYRDLKWWELR

Reconstitution Recommendation:

Lyophilized protein should be reconstituted in water following instructions of batch Quality Control sheet. At higher concentrations the solubility may be reduced and multimers generated. Optimal concentration should be determined for specific application.

Formulation:

Recombinant human EGF is lyophilized from 10mM Phosphate Potasium buffer pH 7.5 and 230 mM NaCl.

Description:

Human Recombinant Epidermal Growth Factor, (rhEGF) is a is a small mitogenic polypeptide which is present in many mammalian species and is distributed throughout a wide number of tissues and body fluids. EGF stimulates the proliferation and differentiation of epithelial cells from skin, cornea, lung and tracheal tissue and the gastrointestinal tract. EGF also promotes growth and migration of keratinocytes and enhances the proliferation of fibroblasts and embryonic cells. It is a member of a growth factor family which is characterized by the presence of 6 conserved cysteine motifs that form three disulfide bonds. The biological effects of EGF are mediated by a specific transmembrane receptor (EGF-R). The binding of EGF to EGFR will induce receptor dimerization, which is required for activating the tyrosine kinase in the receptor cytoplasmic domain. Thus, EGF triggers several signal transduction pathways including JAK/STAT, Ras/ERK and PI3K/AKT pathways.
EGF plays an important role in wound healing and organogenesis .In addition to its proliferative effects, it participle of a variety of other bioactivities, including effects on cytoskeletal organization, cell migration and the synthesis and turnover of extracellular matrix molecules. Therefore, hEGF has wide application prospects in clinical and cosmetic fields.

Storage and Stability:

This lyophilized preparation is stable at 2-8º C for short term, long storage it should be kept at -20ºC. Reconstituted protein should be stored in working aliquots at –20℃. Repeated freezing and thawing is not recommended.

References:

Carpenter, G. and Cohen, S., 1979. Epidermal Growth Factor. Annu. Rev. Biochem., 48, 193-216.
Brown, G. L. et al., 1989. Enhancement of wound healing by topical treatment with epidermal growth factor. N. Engl. J. Med., 321(2):76-9.
Alemdaroglu, C. et al., 2006. An investigation on burn wound healing in rats with chitosan gel formulation containing epidermal growth factor. Burns. 32(3):319-27.
Burgess, A. W., 2008. EGFR family: Structure physiology signaling and therapeutic targets. Growth Factors. Vol. 26, No. 5, Pages 263-274.
Heo, J. S. et al., 2006. EGF stimulates proliferation of mouse embryonic stem cells: involvement of Ca2+ influx and p44/42 MAPKsAm. J. Physiol. Cell. Physiol., 290:C123.
Kitazawa, T. 1990. The mechanism of accelerated corneal epithelial healing by human EGF. Invest Ophthalmol. Vis. Sci., 31(9):1773-7.
Henson, E. S. and Gibson, S. B., 2006. Surviving cell death through epidermal growth factor (EGF) signal transduction pathways: implication for cancer therapy. Cell Signal, Dec;18 (12), 2089-97.
Rubin, J.S., et al., 1991. A broad-spectrum human lung fibroblast-derived mitogen is a variant of hepatocyte growth factor Proc. Natl. Acad. Sci. USA. Vol. 88, pp. 415-419.

For R+D purposes only. Purchaser must determine the suitability of the product(s) for their particular use.
Product(s) expressed through a transient plant system are intrinsically Animal-free

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Applications:

Functional studies, Cell assay, SDS-PAGE, Western Blot, Antibody Production. EGF is commonly used as a supplement in serum-free or reduced serum media used for culture of mammalian cells.

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Upon this protein has not been tested in a particular technique this not necessarily excludes its use in such procedures.

Purity Confirmation:

The protein was resolved by SDS polyacrylamide gel electrophoresis and the gel was stained with coomassie blue. Fig. 1.

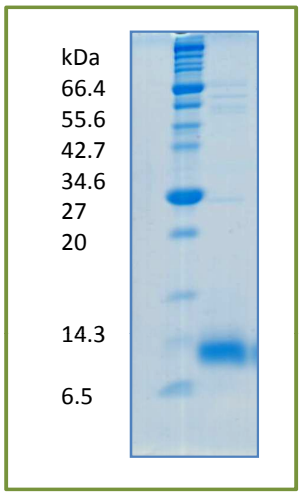


Figure 1.- SDS-PAGE analysis of recombinant EGF. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue. Lane 1: Molecular weight marker (MWM; kDa); Lane 2 contains 0.25 ug of rhuman EGF. The recombinant protein migrate with an apparent molecular mass of 7 kDa under reducing conditions.

Serological Identification:

The protein was electrophoresed under reducing condition on a 15% SDS-polyacrylamide gel, transferred by electro blotting to a NC membrane and visualized by immune-detection with specific EGF antibody. Fig. 2.

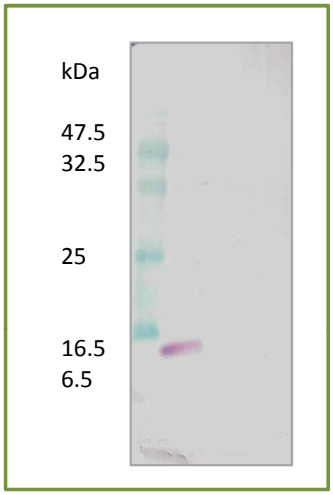
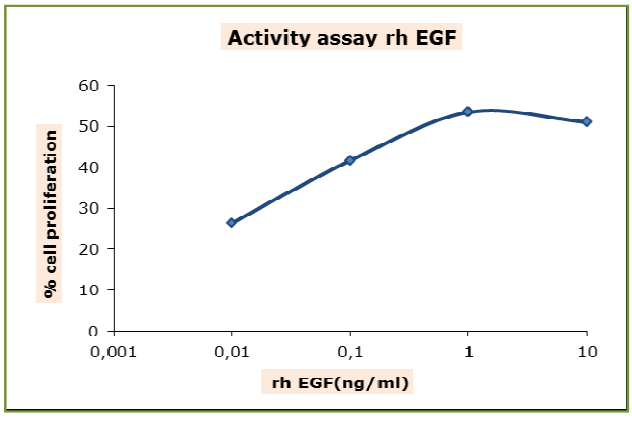


Figure 2.- Analysis of rhuman EGF with specific antibody by Western Blot; Lane 1: Molecular weight marker (MWM; kDa); Lane 2 contains 0.25 ug of rhuman EGF

Bioassay:

1.The specific activity is determined by the dose-dependent proliferation of murine BALB/c 3T3 cells (measured by MTT assay).

ED50 <1 ng/ml



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