



## **Baiya Plant EGF** **(Human Epidermal Growth Factor)**



## **Product information**

### **Product overview: Human Epidermal growth factor (hEGF)**

Growth factors are natural proteins that induce cellular growth, proliferation, healing and differentiation. Human epidermal growth factor (hEGF) is a single polypeptide containing 53 amino acids which can be found in a number of tissues and body fluids (1). Human EGF has been exhibited its ability to promote the growth of epidermal cells, keratinocyte and fibroblast (2) (3) (4).

The biological activities of hEGF are mediated through three major steps: (a) the interaction between a receptor-specific ligand with EGFR in the extracellular domain (b) receptor dimerization of active EGFR-EGFR activates phosphorylation of the intracellular domain or tyrosine kinase (c) initiation of several intracellular signaling cascades (5). There are two major intracellular pathways activated by EGFR including (6): (1) RAS-RAF-MEK-MAPK pathway which controls cell-cycle progression from the G1 phase to S phase and cell proliferation, (2) PI3K-Akt pathway which activates a cascade of antiapoptotic and cytoprotective signals.

### **Source**

Human EGF is produced from *Nicotiana benthamiana*.

### **Protein Tag**

His tag

### **Form**

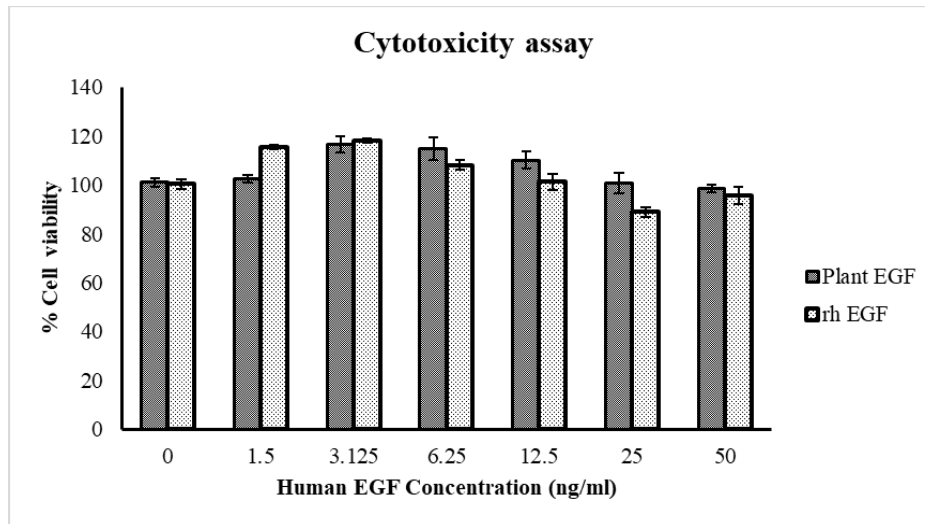
Recombinant human EGF is supplied in as sterile-filtered solution in PBS (pH7.4).

### **Stability and storage**

The product should be stored at -20°C or below. Avoid repeated freezing and thawing cycles.

### ***In vitro* Efficacy tests**

Human EGF was tested its cytotoxicity activity in immortalized human keratinocyte (HaCaT) cell lines. HaCaT lines were seeded in 48 well-plate, grown reaching 90% confluency and treated with 1.5-50 ng/ml of plant-produced hEGF with a commercial hEGF as a control. Cell viability assay was evaluated by the level of cellular ATP. The results showed that the plant-produced hEGF showed no cytotoxicity similar to commercial hEGF in all tested concentrations.



## Reference

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4. Barrandon Y, Green H. Cell migration is essential for sustained growth of keratinocyte colonies: the roles of transforming growth factor- $\alpha$  and epidermal growth factor. Cell. 1987;50(7):1131-7.
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6. Berlanga-Acosta J, Gavilondo-Cowley J, López-Saura P, González-López T, Castro-Santana MD, López-Mola E, et al. Epidermal growth factor in clinical practice—a review of its biological actions, clinical indications and safety implications. Int Wound J. 2009;6(5):331-46.