

Recombinant Human EGF Protein

Catalog Number: GW-TL-613

Alternate Names: Epidermal Growth Factor; HOMG4; URG

Construction: A DNA sequence encoding the extracellular domain of human EGF (NP_001954.2) was expressed with the C-terminal fused Fc region of human IgG1.

Expression Host: HEK293 cells

QC Testing Purity: > 95 % as determined by SDS-PAGE

Bio Activity: The ED₅₀ determined by a cell proliferation assay using balb/c 3T3 cells is ≤ 0.1 ng/ml, corresponding to a specific activity of $\geq 1 \times 10^7$ units/mg.

Endotoxin: < 0.01 EU per μ g of the protein as determined by the LAL method

Molecular Mass: The recombinant human EGF consists of 294 amino acids and predicts a molecular mass of 33 kDa.

Formulation: Lyophilized from sterile PBS, pH 7.4. Normally 6-8 % trehalose and mannitol are added as protectants before lyophilization.

Storage: Store at -20°C. Aliquot to avoid repeated freeze/thaw cycles.

Producer: <https://www.tlbiotechnology.com/>

Distributor: LF-Biotech GmbH (<https://www.lf-biotech.com/>),
contact@LF-Biotech.com

Safety: For research use only. Not for use in human or clinical diagnosis.

Background

EGF is a potent growth factor that stimulates the proliferation of various epidermal and epithelial cells. Additionally, EGF has been shown to inhibit gastric secretion, and to be involved in wound healing. EGF signals through a receptor known as c-erbB, which is a class I tyrosine kinase receptor. As a low-molecular weight polypeptide, EGF was first purified from the mouse submandibular gland, but since then it was found in many human tissues including submandibular gland, parotid gland. It can also be found in human platelets, macrophages, urine, saliva, milk, and plasma. EGF is a growth factor

that stimulates the growth of various epidermal and epithelial tissues in vivo and in vitro and of some fibroblasts in cell culture. It results in cellular proliferation, differentiation, and survival. Salivary EGF, which seems also regulated by dietary inorganic iodine, also plays an important physiological role in the maintenance of oro-esophageal and gastric tissue integrity. EGF acts by binding with high affinity to epidermal growth factor receptor on the cell surface and stimulating the intrinsic protein-tyrosine kinase activity of the receptor. The tyrosine kinase activity, in turn, initiates a signal transduction cascade that results in a variety of biochemical changes within the cell - a rise in intracellular calcium levels, increased glycolysis and protein synthesis, and increases in the expression of certain genes including the gene for EGFR - that ultimately lead to DNA synthesis and cell proliferation.

References

1. Chen JX, et al. (2011) Involvement of c-Src/STAT3 signal in EGF induced proliferation of rat spermatogonial stem cells. *Mol Cell Biochem.*358(1-2):67-73.
2. Guo Y, et al. (2012) Correlations among ERCC1, XPB, UBE2I, EGF, TAL2 and ILF3 revealed by gene signatures of histological subtypes of patients with epithelial ovarian cancer. *Oncol Rep.* 27(1):286-92.
3. Kim S, et al. (2012) Smad7 acts as a negative regulator of the epidermal growth factor (EGF) signaling pathway in breast cancer cells. *Cancer Lett.* 314(2):147-54.