Recombinant Human EGF Protein

Product Name

Recombinant Human EGF Protein

Size / Catalog Number

10μg / TL613-0010
50μg / GMP-TL613-0050
100μg / GMP-TL613-0100

Product Information

Synonyms: Epidermal growth factor, Urogastrone, URG, HOMG4
Accession: UniProt P01133-1
Expressed Region: Asn971-Arg1023
Tag: C-terminal 6×His-tag
Expression system: HEK293 cells
Predicted Molecular weight: 7.04 kDa
Purity: > 90% as determined by SDS-PAGE
Endotoxin: < 0.1 EU per 1 μg of protein (LAL method)
Form: Lyophilized from sterile PBS (pH7.4), typically supplemented with 6% mannitol as a protectant.

Background

The recombinant human Epidermal Growth Factor (EGF) protein is a small molecular weight (~7 kDa) protein produced via transient expression in HEK-293 cells, featuring a C-terminal polyhistidine tag and containing 53 amino acid residues stabilized by three disulfide bonds. As the founding member of the EGF family, it exerts its potent mitogenic effects by binding with high affinity to the Epidermal Growth Factor Receptor (EGFR) on the cell surface. This binding stimulates EGFR's intrinsic tyrosine kinase activity, initiating downstream signaling cascades (e.g., increased intracellular calcium, enhanced glycolysis and protein synthesis, upregulation of specific genes) that drive the proliferation, differentiation, and survival of diverse epidermal, epithelial cells, and fibroblasts. In the context of cell and gene therapy, EGF holds significant potential due to its strong tissue repair and regenerative properties. Key applications include promoting wound healing (e.g., oral, gastroesophageal ulcers), maintaining mucosal barrier integrity, and stimulating the growth of epidermal/epithelial tissues in tissue engineering and in vitro culture systems. Potential oncogenic risk associated with EGF requires careful consideration.

Stability & Storage

Lyophilized powder: Stable for 12 months at -80°C or 6 months at -20°C when stored in the original sealed container under desiccant.
Reconstitution: Dissolve in sterile water for injection, 0.9% NaCl, or PBS (pH7.4), maintaining a final concentration ≥ 100 μg/mL to prevent adsorption. For 10 μg vial size，dissolve contents in 200 μL of the above solvents.
Handling: Aliquot to avoid repeated freeze-thaw cycles.

References

1. Khan AA, Huat TJ, Al Mutery A, *et al*. Significant transcriptomic changes are associated

with differentiation of bone marrow-derived mesenchymal stem cells into neural progenitor-like cells in the presence of bFGF and EGF. Cell Biosci. 2020 Oct 28;10:126.
2. Jørgensen PE, Eskildsen L, Nexø E. Adsorption of EGF receptor ligands to test tubes--a factor with implications for studies on the potency of these peptides. Scand J Clin Lab Invest. 1999 May;59(3):191-7.
3. Qiu X, Cheng JC, Klausen C, *et al*. EGF-Induced Connexin43 Negatively Regulates Cell Proliferation in Human Ovarian Cancer. J Cell Physiol. 2016 Jan;231(1):111-9.

Intended Us

For research and manufacturing purposes only.