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Product Information

Epidermal Growth Factor
BioReagent
from mouse submaxillary glands

Catalog Number **E1257**
Storage Temperature 2–8 °C

Synonym: EGF

Product Description

Epidermal Growth Factor (EGF) is a 6 kDa polypeptide discovered by Cohen and Levi-Montalcini, and isolated from mouse submaxillary glands.[1-3] EGF is mitogenic for a variety of epidermal and epithelial cells, including fibroblasts, glial cells, mammary epithelial cells, vascular and corneal endothelial cells, bovine granulosa, rabbit chondrocytes, HeLa and SV40-3T3 cells.[4] In tissue culture, EGF can act to reduce or eliminate the requirement for serum and is often used in conjunction with other media additives and hormones, such as insulin, transferrin, and prostaglandin E_1.[5] Cellular metabolic effects of EGF include stimulation of ion fluxes,[6] glucose transport,[7] glycolysis,[8] and synthesis of DNA, RNA and proteins.[4]

Human EGF was originally isolated from human urine as β-urogastrone, an inhibitor of gastric acid secretion.[9] Mouse and human EGF are 70% homologous in their sequence of 53 amino acids, act upon the same EGF receptor, elicit nearly identical biological effects and are highly inter-species cross-reactive.[10-13]

EGF is structurally homologous to human transforming growth factor-α, which exerts its actions through EGF receptors.[14] EGF is also homologous to a sequence contained in a 19 kDa protein of Vaccinia virus,[15] which appears to utilize the EGF receptor to gain entry into cells.[16] The EGF receptor is a 170 kDa glycoprotein having EGF-activated protein tyrosine kinase activity.[17] Platelet-derived growth factor transmodulates the EGF receptor by reducing both its EGF affinity and its kinase activity.[18]

Human EGF is found in many body fluids, including urine, milk, saliva, sweat, and seminal fluid,[19,20] and has its highest concentration in alpha-granules of blood platelets.[21] The biological role of EGF includes the inhibition of gastric acid secretion,[10] support of growth and differentiation during fetal development,[22] neuromodulation in the central nervous system,[23] and stimulation of epidermal growth and keratinization.[3] Clinical trials have shown that topical administration of human recombinant EGF accelerates wound healing.[24]

Purity: ≥98% (SDS-PAGE)

Bioactivity: tested in human foreskin fibroblasts in serum-containing medium. EGF is tested for mitogenic activity in a cell proliferation assay using human foreskin fibroblasts grown for 7 days in DME with 10% fetal bovine serum.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Reconstitute the contents of the vial using 0.2 μm filtered buffered saline or tissue culture medium containing 0.1–1.0% BSA or 1–10% serum to obtain a stock solution. This may be diluted before use to the final working concentration of EGF. Additional filtration of the stock solution is not recommended and may result in product loss due to adsorption onto the filter membrane.

Storage/Stability

Prior to reconstitution store vial at 2–8 °C. After reconstitution, the product may be stored for a maximum of two weeks at 2–8 °C or may be stored as aliquots at –20 °C. Prolonged storage and/or repeated freezing and thawing of reconstituted product is **not** recommended.

References

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