For life science research only. Not for use in diagnostic procedures.

Epidermal Growth Factor, human (hEGF)

recombinant (*E. coli*)

Version: 07

Content Version: March 2021

Cat. No. 11 376 454 001 100 µg

Store product at −15 to −25°C.

1. General Information

1.1. Contents

Vial / Bottle	Cap	Label	Function / Description	Content
1	red	Epidermal Growth Factor, human (hEGF)	White lyophilizate, filtered through 0.2 µm pore size membrane before lyophilization.	1 bottle, 100 µg

1.2. Storage and Stability

Storage Conditions (Product)

The product is shipped on dry ice.
When stored at −15 to −25°C, the product is stable through the expiration date printed on the label.

Vial / Bottle	Cap	Label	Storage
1	red	Epidermal Growth Factor, human (hEGF)	Store at −15 to −25°C.

Storage Conditions (Working Solution)

Store reconstituted solution in aliquots at −15 to −25°C.
⚠ ***Avoid repeated freezing and thawing.***

Reconstitution

Reconstitute the lyophilizate in double-distilled water (final concentration: 500 µg/ml). Dilute further with PBS or medium containing 1 mg/ml BSA (bovine serum albumin), or 1 to 10% serum.

1.3. Additional Equipment and Reagent required

For reconstitution of the lyophilizate

- Phosphate-buffered saline (PBS)
- Cell-culture medium
- BSA
- Water, PCR Grade*

1.4. Application

Epidermal Growth Factor (EGF) stimulates the proliferation and differentiation of a wide variety of cells of ectodermal and mesodermal origin, including:
- Fibroblasts
- Keratinocytes
- Epithelial cells
- Endothelial cells
- Chondrocytes
- Glial cells

EGF is also a constitutent of many serum-free media formulations.

2. How to Use this Product

2.1. Before you Begin

General Considerations

Primary structure

One polypeptide chain (54 amino acids) is identical to that of human, natural EGF (β-urogastrone) (53 amino acids), however, recombinant EGF has an additional methionine at the amino terminus.

2.2. Parameters

Biological Activity

Human, recombinant EGF as the same biological activity as compared to mouse, natural EGF.

Molecular Weight

6,200 Da

Purity

≥95% pure as determined by SDS-PAGE.
Endotoxin level: ≤100 EU/mg (LAL).

Specific Activity

≤0.2 ng/ml
At least the same specific activity (EC_{50}) compared to the indicated standard is guaranteed.

Specificity

Human EGF is effective on human and mouse cells.

Unit Definition

EC_{50} definition

The amount of hEGF that is required to support half-maximal stimulation of cell proliferation (MTT cleavage) with AKR-2B cells.

Working Concentration

Human, recombinant EGF has the same biological activity as compared to mouse, natural EGF, and exerts its biological activity in the concentration range of 0.5 to 20 ng/ml. For serum-free cell cultures, use a concentration of 1 to 10 ng/ml.

3. Results

[^{3}H]-Thymidine incorporation into mouse fibroblasts

AKR-2B cells were seeded at a concentration of 5.0 × 10^4 cells/ml into 96-well cell culture plates (0.1 ml/well). The culture medium used was McCoy 5A medium containing 200 mM L-glutamine and 7.5% FCS (fetal calf serum). The cells were incubated at +37°C for 4 days. When the cells were grown to confluence, the culture medium was aspirated, cells were washed twice with PBS, and fresh culture medium (0.1 ml/well) was added. The culture medium for synchronization was MCDB-402 medium containing 0.5 mg/ml insulin. The cells were again incubated for 2 days. After this incubation period, the culture medium was aspirated and fresh MCDB-402 medium (0.1 ml/well) containing 0.5 mg/ml insulin was added. After 1 hour, various amounts of EGF were added. After another 24 hours, [^{3}H]-thymidine was added. After 6 hours, the amount of incorporated [^{3}H]-thymidine was determined.

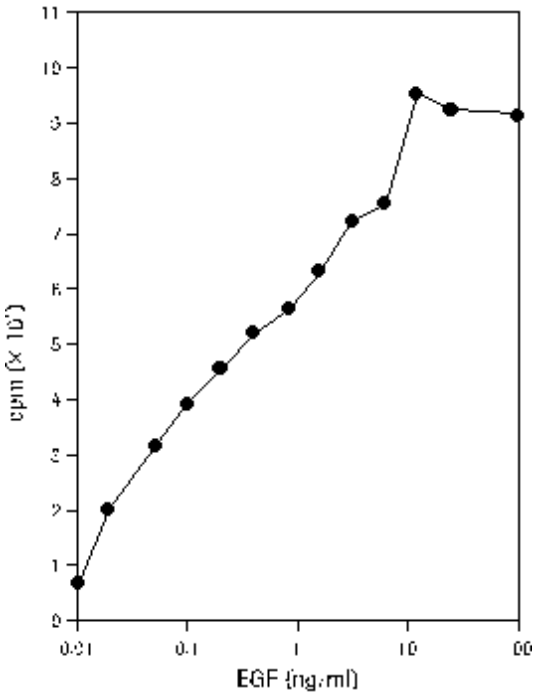

Fig. 1: ^{3}[H]-thymidine incorporation into mouse AKR-2B fibroblasts in response to human recombinant EGF.

4. Additional Information on this Product

4.1. Test Principle

Epidermal growth factor (EGF) is a small mitogenic polypeptide which is present in many mammalian species. It is distributed throughout a wide number of tissues and body fluid.
EGF is synthesized in

- tubular cells of the submaxillary gland of the mouse,
- acinar cells of the human submaxillary gland,
- human duodenal glands.

In addition, structurally and functionally related polypeptides termed transforming growth factor-α: (TGF-α) and vaccinia growth factor (VGF) have been described.
Human EGF is identical to β-urogastrone, a polypeptide which was recognized and isolated on the basis of its ability to inhibit gastric acid secretion. 37 amino acids of the 53 amino acids comprising the longer urogastrone (human EGF) and mouse EGF are common to both peptides (70% homology), and the three disulfide bonds are formed in the same relative positions.
The cellular receptor for EGF is the best understood growth factor receptor. The oncogene v-erbB codes for a product homologous to a portion of the EGF receptor in which the EGF-binding domain has been deleted. Evidence exists suggesting that this truncation of the EGF receptor may lead to constitutive activation without requirement for ligand binding.

Preparation

Recombinant, human Epidermal Growth Factor (hEGF) is produced in *E. coli* and purified by standard chromatographic techniques.

4.2. Quality Control

For lot-specific certificates of analysis, see section **Contact and Support**.

5. Supplementary Information

5.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
Information Note: Additional information about the current topic or procedure.	
Important Note: Information critical to the success of the current procedure or use of the product.	
① ② ③ etc.	Stages in a process that usually occur in the order listed.
❶ ❷ ❸ etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

5.2. Changes to previous version

Layout changes.
Editorial changes.

5.3. Ordering Information

Product	Pack Size	Cat. No.
Reagents, kits		
Water, PCR Grade	0.5 L	03 036 430 103

5.4. Trademarks

All product names and trademarks are the property of their respective owners.

5.5. License Disclaimer

For patent license limitations for individual products please refer to:
List of biochemical reagent products.

5.6. Regulatory Disclaimer

For life science research only. Not for use in diagnostic procedures.

5.7. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

5.8. Contact and Support

To ask questions, solve problems, suggest enhancements or report new applications, please visit our **Online Technical Support Site**.

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed.

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