



Animal Origin-Free / GMP-compliant grade

# Recombinant Human EGF

From recombinant *Brevibacillus choshinensis* <sup>1)</sup>

100 µg	Order no. REG100UG
500 µg	Order no. REG500UG
10 mg	Order no. REG10MG



## 1. Description

Epidermal growth factor (EGF), discovered in 1979, has growth promoting effect on a wide range of epithelial and epidermal cells including fibroblasts, glial cells, mammary epithelial cells, vascular and corneal endothelial cells, bovine granulosa, Hela cells, and SV-40-3T3 cells <sup>2)</sup>. EGF has been used in many trials in a medical field and reported to be effective on the proliferation of human epidermal cells and corneal endothelial cells <sup>4)</sup> (regenerative medicine), regeneration of liver, and healing of gastroduodenal ulcers. In veterinary medicine too, EGF has many applications. For example, it has been demonstrated that the cataplasm containing EGF had wound healing effect <sup>5)</sup>. Furthermore, EGF has currently been used as a component of cell culture media.

## 2. Properties

Molecular Weight : 6217.55 (TOF-MS)  
 Isoelectric point : ca. 4.5 <sup>3)</sup>  
 AA sequence :NSDSECP LSHDGYCLHDGVCMYIEALDKYA  
 CNCVVG YIGERCQYRDLKWWELR

## 3. Source

A DNA sequence encoding the mature human EGF protein was expressed in *Brevibacillus choshinensis*.

## 4. Specification

TEST	SPECIFICATION	METHOD
Appearance	White powder	Visual inspection
Biological Activity	< 0.2 ng / ml (ED50)	Cell Proliferation ELISA*
Purity 1	> 95%	RP-HPLC
Purity 2	> 98%	SDS-PAGE
Endotoxin	< 0.01 EU /µg EGF	LAL assay
Microbial Limit Test	Negative	Plate-count Method

\*Measured by its ability to stimulate 5-bromo-2'-deoxyuridine incorporation into an EGF-responsive mouse fibroblast cell line, Balb/c3T3.

Stabilizer	Not contained
Sizes	100 µg , 500 µg, 10mg
Package	Clear vial
Storage	- 20°C (Avoid thawing)
Expiry	Unopened vial 2 years at the storage condition above.
Material	No animal derived ingredients are used in its manufacture.

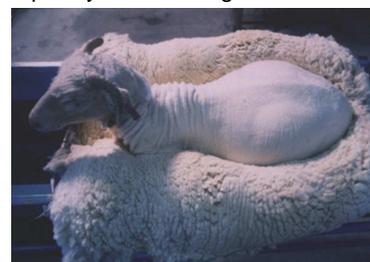
## 5. Quality statement

Higeta's Animal-Free / GMP-compliant grade Recombinant Human EGF ( AOF/GMP hEGF) is for research and cell culture applications, not intended for human *in vivo* applications.

This product is manufactured and tested under a certified ISO9001 quality system plus our own established GMP system. Our GMP system is based on Japanese veterinary pharmaceuticals GMP and partially adopted ICH Q7.

## 6. Background

The recombinant human EGF, which is manufactured using our facilities and quality management systems that comply with GMP for veterinary pharmaceuticals, has been used in Australia as an agent to harvest wool from sheep. Namely, injection of EGF causes temporary halt of hair growth followed by weakening of the juncture between skin and hair. Thus the wool is pulled off from sheep easily (as shown in the picture). This technology attracts attention as the next generation wool harvesting method.



AOF/GMP hEGF developed from this veterinary pharmaceuticals. The product is further purified (polished) from veterinary grade.

AOF/GMP hEGF products are used in the various fields such as cell culture for vaccine manufacturing or research of regenerative medicine.

## 7. References

- 1) Yamagata, H. et al., Proc. Natl. Acad. Sci. 86, 3589-3593 (1989)
- 2) Carpenter, G., and Cohen, S., Annu. Rev. Biochem., 48, 193-216 (1979)
- 3) Hirata, Y. et al., Endocrinol. Jpn. 33, 433-40 (1986)
- 4) Joyce, N.S., and Zhu, C.C., Cornea. 23, S8-S19(2004)
- 5) Tanaka, A. et al., J. Vet. Med. Sci. 67, 909-13 (2005)

## 8. Contact / Order

Higeta Shoyu Co., Ltd, R & D Department  
 1-5 HASAKI-SHINKOU, KAMISU-SHI, IBARAKI 314-0407, JAPAN  
 TEL: +81-479-40-3355, FAX: +81-479-44-8882  
 E-mail: bio@higeta.co.jp