9051 Mira Mesa Blvd, #910094
San Diego, CA 92191
Tel: 760-390-3989

EGF Human

Epidermal Growth Factor Human Recombinant
GRF0029

Product Overview

Name	EGF Human
Description	
Epidermal Growth Factor Human Recombinant	
Accession (Primary)	P01133
Synonyms	
Urogastrone, URG, EGF.	
Introduction	
Epidermal growth factor has a profound effect on the differentiation of specific cells in vivo and is a potent mitogenic factor for a variety of cultured cells of both ectodermal and mesodermal origin. The EGF precursor is believed to exist as a membrane-bound molecule which is proteolytically cleaved to generate the 53-amino acid peptide hormone that stimulates cells to divide. EGF stimulates the growth of various epidermal and epithelial tissues in vivo and in vitro and of some fibroblasts in cell culture.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
EGF was lyophilized from a concentrated (1mg/ml) solution containing PBS pH-7.4.	
Stability	
Lyophilized Epidermal Growth Factor Recombinant although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution EGF should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.	
Purity	
Greater than 98.0% as determined by SDS-PAGE.	
Amino acid sequence	
NSDSECPLSH DGYCLHDGVC MYIEALDKYA CNCVVGYIGE RCQYRDLKWW ELR.	
Biological Activity	

9051 Mira Mesa Blvd, #910094
San Diego, CA 92191
Tel: 760-390-3989

The ED 50 as determined by a cell proliferation assay using murine Balb/c 3T3 cells is less than 0.1 ng/ml, corresponding to a specific activity of > 1.0x10 7 IU/mg.

Solubility

It is recommended to reconstitute the lyophilized Epidermal Growth Factor in sterile 18MΩ-cm H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

About EGF: In the sphere of biomedical studies, epidermal boom factor (EGF) is a cornerstone that gives precious insights into the mechanisms underlying tissue healing, differentiation, and mobile proliferation. In this article we will explore the characteristics and uses of epidermal growth factor (EGF). Description: Epidermal growth factor (EGF) is a 6-kDa protein consisting of 53 amino acid residues and 3 intramolecular disulfide linkages. Human tissues, such as platelets, the parotid gland, and the submandibular gland, are rich in EGF. EGF, which was first discovered in human urine and the submaxillary glands of mice, functions as a major modulator of cell proliferation by attaching to its receptor, EGFR, which is found on the cell membrane. EGF triggers autophosphorylation of transmembrane protein tyrosine kinase EGFR upon binding, hence initiating downstream signaling cascades through pathways such as phosphatidylinositol and ras. Beyond the cell membrane, EGF has a variety of roles as it also initiates cytoplasmic processes such actin depolymerization and membrane ruffle formation. Studies indicate that EGF and its receptor might possibly be important components of the nucleus, highlighting the complexity of EGF-mediated cellular responses. Function: By attaching to the epidermal growth factor receptor (EGFR), EGF promotes the survival, differentiation, and multiplication of cells. This connection is essential for boosting many physiological processes and stimulating cell proliferation. The preservation of oro-esophageal and stomach tissue integrity is greatly supported by salivary EGF, which is regulated by dietary inorganic iodine. Its actions include the healing of gastric and oral ulcers, the inhibition of gastric acid secretion, the stimulation of DNA synthesis, and the protection of mucosal surfaces against harmful substances such as bile acids, gastric acid, and bacteria. Salivary EGF's role extends to repairing gastric tissue and addressing oro-esophagal issues, showcasing its healing ability in resolving oral and gastrointestinal ailments, including ulcers. Mechanism: EGF functions by forming a strong bond with the cell surface's epidermal growth factor receptor (EGFR), which triggers ligand- induced dimerization. This incident sets off the intrinsic protein-tyrosine kinase activity of EGFR, which in turn initiates a signal transduction cascade inside the cell. Numerous biochemical changes are brought about by this cascade, such as increased intracellular calcium levels, increased glycolysis and protein synthesis, and increased expression of particular genes, most notably the EGFR gene. These carefully planned alterations eventually promote DNA synthesis and cell division, illuminating the complex process by which EGF directs basic biological functions and modulates cellular responses.

References

1.Title:Activation of the Hedgehog pathway in pilocytic astrocytomas. Publication:Neuro Oncol (2010) 12 (8): 790-798. doi: 10.1093/neuonc/noq026 First published online: March 11, 2010 Link: EGF prospec publication 2.Title:Evaluation of bioactivity and effect of polymeric stabilizers during heat treatment for the unfolded fraction of human epidermal growth factor. Publication:SEN'I GAKKAISHI vol.67,nov.8(2011) Link: EGF Human prospec publication

3.Title:GPR56 is essential for testis development and male fertility in mice. Publication:Article first published online: 27 OCT 2010 DOI: 10.1002/dvdy.22468 Link: Epidermal Growth Factor prospec publication 4.Title:Changing the Receptor Specificity of Anthrax Toxin. Publication:doi: 10.1128/?mBio.00088-12 1 May 2012 mBio vol. 3 no. 3 e00088-12 Link: Epidermal Growth Factor Human prospec publication 5.Title:Characterization of Non-Specific Cytotoxic Cell Receptor Protein 1: A New Member of the Lectin-Type Subfamily of F-Box Proteins. Publication:Kallio H, Tolvanen M, J?nis J, Pan P-w, Laurila E, et al. (2011) Characterization of Non-Specific Cytotoxic Cell Receptor Protein 1: A New Member of the Lectin-Type Subfamily of F-Box Proteins. PLoS ONE 6(11): e27152. doi:10.1371/journal.pone.0027152 Link: EGF Protein prospec publication 6. Title: Cancer-Associated Carbonic Anhydrases IX and XII: Effect of Growth Factors on Gene Expression in Human Cancer Cell Lines. Publication: Journal of Cancer Molecules 5(3): 73-78, 2010. Link: http://mupnet.com/JOCM%205(3)%2073-78.pdf 7. Title: EGR-1 activation by EGF inhibits MMP-9 expression and lymphoma growth Publication: Blood 116.5 (2010): 759-766. Link: Epidermal Growth Factor Protein prospec publication

Precautions

EGF Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P01133)

Background

About EGF: In the sphere of biomedical studies, epidermal boom factor (EGF) is a cornerstone that gives precious insights into the mechanisms underlying tissue healing, differentiation, and mobile proliferation. In this article we will explore the characteristics and uses of epidermal growth factor (EGF). Description: Epidermal growth factor (EGF) is a 6-kDa protein consisting of 53 amino acid residues and 3 intramolecular disulfide linkages. Human tissues, such as platelets, the parotid gland, and the submandibular gland, are rich in EGF. EGF, which was first discovered in human urine and the submaxillary glands of mice, functions as a major modulator of cell proliferation by attaching to its receptor, EGFR, which is found on the cell membrane. EGF triggers autophosphorylation of transmembrane protein tyrosine kinase EGFR upon binding, hence initiating downstream signaling cascades through pathways such as phosphatidylinositol and ras. Beyond the cell membrane, EGF has a variety of roles as it also initiates cytoplasmic processes such actin depolymerization and membrane ruffle formation. Studies indicate that EGF and its receptor might possibly be important components of the nucleus, highlighting the complexity of EGF-mediated cellular responses. Function: By attaching to the epidermal growth factor receptor (EGFR), EGF promotes the survival, differentiation, and multiplication of cells. This connection is essential for boosting many physiological processes and

stimulating cell proliferation. The preservation of oro-esophageal and stomach tissue integrity is greatly supported by salivary EGF, which is regulated by dietary inorganic iodine. Its actions include the healing of gastric and oral ulcers, the inhibition of gastric acid secretion, the stimulation of DNA synthesis, and the protection of mucosal surfaces against harmful substances such as bile acids, gastric acid, and bacteria. Salivary EGF's role extends to repairing gastric tissue and addressing oro-esophagal issues, showcasing its healing ability in resolving oral and gastrointestinal ailments, including ulcers. Mechanism: EGF functions by forming a strong bond with the cell surface's epidermal growth factor receptor (EGFR), which triggers ligand- induced dimerization. This incident sets off the intrinsic protein-tyrosine kinase activity of EGFR, which in turn initiates a signal transduction cascade inside the cell. Numerous biochemical changes are brought about by this cascade, such as increased intracellular calcium levels, increased glycolysis and protein synthesis, and increased expression of particular genes, most notably the EGFR gene. These carefully planned alterations eventually promote DNA synthesis and cell division, illuminating the complex process by which EGF directs basic biological functions and modulates cellular responses.

References for protein:

1.Title:Activation of the Hedgehog pathway in pilocytic astrocytomas. Publication:Neuro Oncol (2010) 12 (8): 790-798. doi: 10.1093/neuonc/noq026 First published online: March 11, 2010 Link: EGF prospec publication 2.Title:Evaluation of bioactivity and effect of polymeric stabilizers during heat treatment for the unfolded fraction of human epidermal growth factor. Publication:SEN'I GAKKAISHI vol.67,nov.8(2011) Link: EGF Human prospec publication 3.Title:GPR56 is essential for testis development and male fertility in mice. Publication:Article first published online: 27 OCT 2010 DOI: 10.1002/dvdy.22468 Link: Epidermal Growth Factor prospec publication 4.Title:Changing the Receptor Specificity of Anthrax Toxin. Publication:doi: 10.1128/?mBio.00088-12 1 May 2012 mBio vol. 3 no. 3 e00088-12 Link: Epidermal Growth Factor Human prospec publication 5.Title:Characterization of Non-Specific Cytotoxic Cell Receptor Protein 1: A New Member of the Lectin-Type Subfamily of F-Box Proteins. Publication:Kallio H, Tolvanen M, J?nis J, Pan P-w, Laurila E, et al. (2011) Characterization of Non-Specific Cytotoxic Cell Receptor Protein 1: A New Member of the Lectin-Type Subfamily of F-Box Proteins. PLoS ONE 6(11): e27152. doi:10.1371/journal.pone.0027152 Link: EGF Protein prospec publication 6. Title: Cancer-Associated Carbonic Anhydrases IX and XII: Effect of Growth Factors on Gene Expression in Human Cancer Cell Lines. Publication: Journal of Cancer Molecules 5(3): 73-78, 2010. Link: http://mupnet.com/JOCM%205(3)%2073-78.pdf 7. Title: EGR-1 activation by EGF inhibits MMP-9 expression and lymphoma growth Publication: Blood 116.5 (2010): 759-766. Link: Epidermal Growth Factor Protein prospec publication