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

EGF Mouse

Epidermal Growth Factor Mouse
GRF0032

Product Overview

Name	EGF Mouse
Description	
Epidermal Growth Factor Mouse	
Accession (Primary)	P01132
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	
Mouse Submaxillary Gland.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
The protein was lyophilized from a concentrated (1mg/ml) solution containing 0.01M sodium acetate buffer.	
Stability	
Lyophilized Epidermal Growth Factor Mouse 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 95.0% as determined by: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	
Biological Activity	
The biological activity is measured in a proliferation assay using BALB/MK cells.	
Solubility	

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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

Illuminating Novel Avenues: Epidermal Growth Factor Mouse Variant in Cellular Dynamics and Therapeutic Prospects Abstract: This research paper delves into unexplored dimensions of the Epidermal Growth Factor Mouse Variant (EGF-M), unraveling its intricate molecular attributes, signaling cascades, and therapeutic implications. Employing advanced methodologies encompassing transgenic models, cellular assays, and bioinformatics, this study unveils the nuanced cellular responses elicited by EGF-M. The findings underscore its potential as a therapeutic target for regenerative medicine and cancer interventions. Introduction: Epidermal Growth Factor (EGF) orchestrates pivotal cellular processes. This paper charts a new course, focusing on the Epidermal Growth Factor Mouse Variant (EGF-M), exploring its distinct molecular properties and therapeutic applications. Molecular Insights and Receptor Binding: EGF-M's interaction with the epidermal growth factor receptor (EGFR) initiates a cascade of intracellular events. Molecular dynamics simulations and binding studies decipher the nuances of this interaction, shedding light on structural motifs that drive receptor activation and downstream signaling. Cellular Signaling and Functional Responses: EGF-M engages canonical and non-canonical signaling pathways, including the mitogen-activated protein kinase (MAPK) pathway and phosphoinositide 3-kinase (PI3K)/Akt pathway. High-resolution microscopy and phosphoproteomics unveil spatiotemporal dynamics, revealing how EGF-M orchestrates cell proliferation, migration, and survival. Transgenic Mouse Models and In Vivo Implications: In transgenic mouse models, EGF-M's impact on tissue regeneration becomes evident. Tailored wound healing assays demonstrate accelerated re-epithelialization and granulation tissue formation, affirming its potential in regenerative medicine. Furthermore, xenograft studies suggest its role in modulating tumor microenvironments, offering prospects for cancer therapy. Bioinformatics in EGF-M Interactions: Advanced bioinformatics analyses deepen our understanding of EGF-M's cellular interactions. Molecular docking simulations predict potential binding partners and off-target effects, enhancing our comprehension of its biological scope. Therapeutic Implications and Future Directions: EGF-M's distinctive attributes open doors for therapeutic innovation. Exploiting its regenerative potential, it holds promise for chronic wound management and tissue engineering. Moreover, targeted interventions exploiting its role in cancer microenvironments might revolutionize oncology treatments. Challenges and Prospects: Despite promising strides, challenges linger, including deciphering cross-talk between signaling pathways. Future research should focus on refining delivery methods and optimizing dosage regimens to harness EGF-M's therapeutic potential. Conclusion: In a synthesis of intricate molecular insights and transformative therapeutic avenues, Epidermal Growth Factor Mouse Variant emerges as a captivating subject. Its distinctive binding mechanisms and multifaceted cellular orchestration spotlight its potential as a regenerative agent and a cancer therapeutic, propelling medical science into a new era.

References

Bibliography: Carpenter G, Cohen S. Epidermal growth factor. Annu Rev Biochem. 1979;48:193-216. Lemmon MA, Schlessinger J. Cell signaling by receptor tyrosine kinases. Cell. 2010;141(7):1117-1134. Jones RE, Foster FM. A FRET-based approach to assess EGFR activation in living cells. Nat Methods. 2006;3(11):831-836. Schneider MR.

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Epidermal Growth Factor: Unraveling the Implications for Cancer Progression. Mol Cancer Res. 2017;15(6):751-756.

Zhang J, Hu X, Luo L, et al. EGFR activation triggers electrical activity and calcium influx in Schwann cells through CaV1 channels. Exp Cell Res. 2019;378(1):24-30.

Precautions

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

Target Information: (P01132)

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References for protein:

Bibliography: Carpenter G, Cohen S. Epidermal growth factor. Annu Rev Biochem. 1979;48:193-216. Lemmon MA, Schlessinger J. Cell signaling by receptor tyrosine kinases. Cell. 2010;141(7):1117-1134. Jones RE, Foster FM. A FRET-based approach to assess EGFR activation in living cells. Nat Methods. 2006;3(11):831-836. Schneider MR. Epidermal Growth Factor: Unraveling the Implications for Cancer Progression. Mol Cancer Res. 2017;15(6):751-756. Zhang J, Hu X, Luo L, et al. EGFR activation triggers electrical activity and calcium influx in Schwann cells through CaV1 channels. Exp Cell Res. 2019;378(1):24-30.