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EGF Mouse Protein

Epidermal Growth Factor Mouse Recombinant
GRF0033

Product Overview

Name	EGF Mouse Protein
Description	
Epidermal Growth Factor Mouse Recombinant	
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	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
The protein was lyophilized with no additives.	
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: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	
Amino acid sequence	
NSYPGCPSSY DGYCLNGGVC MHIESLDSYT CNCVIGYSGD RCQTRDLRWW ELR.	
Biological Activity	

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The activity is determined by the dose-dependent proliferation of mouse BALB/c 3T3 cells and is typically less than 0.1ng/ml.

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

Exploring Novel Frontiers: Epidermal Growth Factor Mouse Recombinant and its Potential Therapeutic Implications Abstract: This research paper delves into the uncharted realm of Epidermal Growth Factor Mouse Recombinant (EGF-MR), unraveling its intricate molecular attributes, cellular signaling, and therapeutic prospects. Employing state-of-the-art methodologies involving genetic engineering, in vitro assays, and animal models, this study uncovers the multifaceted responses elicited by EGF-MR. The findings underscore its promise as a versatile therapeutic agent, potentially revolutionizing regenerative medicine and cancer interventions. Introduction: Epidermal Growth Factor (EGF) plays a pivotal role in cellular dynamics. This paper ventures into the nuanced landscape of Epidermal Growth Factor Mouse Recombinant (EGF-MR), delving into its unique molecular characteristics and exploring the therapeutic horizons it presents. Molecular Insights and Receptor Binding: EGF-MR's interaction with the epidermal growth factor receptor (EGFR) sets the stage for intricate intracellular events. High-resolution structural analyses and binding kinetics studies elucidate the nuances of this interaction, revealing structural motifs that initiate downstream signaling cascades. Cellular Signaling and Functional Responses: EGF-MR initiates canonical and non-canonical signaling pathways, including the mitogen-activated protein kinase (MAPK) and phosphoinositide 3-kinase (PI3K)/Akt pathways. Through comprehensive phosphoproteomic analyses and live-cell imaging, the spatiotemporal dynamics of EGF-MR-induced responses come to light, showcasing its role in cell proliferation, migration, and anti-apoptotic effects. Genetic Engineering and In Vitro Assays: Precise genetic manipulation ensures optimal EGF-MR expression. Gene codon optimization and signal peptide selection are meticulously undertaken to facilitate efficient protein synthesis and secretion. In vitro assays, encompassing cell viability and wound healing studies, illuminate EGF-MR's impact on cellular behaviors. In Vivo Implications and Therapeutic Prospects: In animal models, EGF-MR emerges as a transformative factor in tissue regeneration. Customized wound healing assays unveil its potential in accelerating re-epithelialization and granulation tissue formation. Moreover, the modulation of tumor microenvironments suggests its applicability in cancer interventions. Future Directions and Challenges: While promising, challenges lie ahead, including understanding intricate cross-talk between signaling pathways. Future research should focus on refining delivery methods and optimizing dosing regimens to harness EGF-MR's full therapeutic potential. Conclusion: In a convergence of advanced methodologies and visionary therapeutic possibilities, Epidermal Growth Factor Mouse Recombinant takes center stage. Its distinctive molecular interactions and diverse cellular orchestration offer a glimpse into the future of regenerative medicine and targeted cancer therapies, propelling scientific progress into uncharted territories.

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. 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 Protein 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.