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

EGF Rat Protein

Epidermal Growth Factor Rat
GRF0038

Product Overview

Name	EGF Rat Protein
Description	
Epidermal Growth Factor Rat	
Accession (Primary)	P07522
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	
Adult Male Rat Submandibular Glands.	
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 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 99.0% as determined by(a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	
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.	

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

Background

Illuminating Epidermal Growth Factor Rat Recombinant: Deciphering Cellular Signaling and Therapeutic Potential Abstract: This research paper delves into the enigmatic realm of Epidermal Growth Factor Rat Recombinant (EGF-RR), unraveling its intricate molecular attributes, signaling cascades, and therapeutic prospects. By employing cutting-edge methodologies encompassing protein expression, receptor binding assays, and bioinformatics analyses, this study sheds light on the multifaceted interplay between EGF-RR and cellular responses, offering novel avenues for therapeutic interventions. Introduction: Epidermal Growth Factor (EGF) is pivotal in cellular regulation. This paper navigates the complexities of Epidermal Growth Factor Rat Recombinant (EGF-RR), focusing on its unique molecular properties and potential therapeutic applications. Protein Expression and Purification: The study embarks on precise gene optimization to enhance EGF-RR expression. Purification techniques like affinity chromatography yield purified EGF-RR, primed for subsequent analyses. Receptor Binding Assays and Ligand Interaction: Employing advanced receptor binding assays, the paper deciphers EGF-RR's engagement with its cognate receptor. Quantitative assessments uncover binding kinetics, shedding light on the intricacies of EGF-RR's molecular interaction. Cellular Signaling Pathways and Responses: In vitro cellular assays unveil the signaling cascades ignited by EGF-RR. Through quantitative phosphoproteomic profiling, the study unravels phosphorylation events triggered by EGF-RR, delineating its role in cellular proliferation, migration, and differentiation. Bioinformatics Insights and Structural Modeling: Bioinformatics tools facilitate molecular dynamics simulations, offering insights into EGF-RR's receptor interactions and downstream signaling pathways. Structural modeling captures EGF-RR's conformational changes during signaling cascades. Therapeutic Implications and Future Prospects: EGF-RR's intricate signaling dynamics open avenues for therapeutic exploration. Harnessing its potential in wound healing, tissue regeneration, and cancer modulation emerges as a promising avenue for precision medicine. Challenges and Future Directions: Challenges, including context-specific responses, beckon further investigation. Future research should delve into cross-talk between signaling pathways and EGF-RR's contributions to diverse disease contexts. Conclusion: A fusion of advanced methodologies and visionary insights unveils Epidermal Growth Factor Rat Recombinant as an intriguing subject. Its molecular intricacies and complex cellular interplay ignite prospects for therapeutic breakthroughs, ushering in a new era of precision medicine.

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. Hynes NE, Lane HA. ERBB receptors and cancer: the complexity of targeted inhibitors. Nat Rev Cancer. 2005;5(5):341-354. 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 Rat Protein is for research use only and not for use in diagnostic or therapeutic procedures.

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

Target Information: (P07522)

Background

Illuminating Epidermal Growth Factor Rat Recombinant: Deciphering Cellular Signaling and Therapeutic Potential Abstract: This research paper delves into the enigmatic realm of Epidermal Growth Factor Rat Recombinant (EGF-RR), unraveling its intricate molecular attributes, signaling cascades, and therapeutic prospects. By employing cutting-edge methodologies encompassing protein expression, receptor binding assays, and bioinformatics analyses, this study sheds light on the multifaceted interplay between EGF-RR and cellular responses, offering novel avenues for therapeutic interventions. Introduction: Epidermal Growth Factor (EGF) is pivotal in cellular regulation. This paper navigates the complexities of Epidermal Growth Factor Rat Recombinant (EGF-RR), focusing on its unique molecular properties and potential therapeutic applications. Protein Expression and Purification: The study embarks on precise gene optimization to enhance EGF-RR expression. Purification techniques like affinity chromatography yield purified EGF-RR, primed for subsequent analyses. Receptor Binding Assays and Ligand Interaction: Employing advanced receptor binding assays, the paper deciphers EGF-RR's engagement with its cognate receptor. Quantitative assessments uncover binding kinetics, shedding light on the intricacies of EGF-RR's molecular interaction. Cellular Signaling Pathways and Responses: In vitro cellular assays unveil the signaling cascades ignited by EGF-RR. Through quantitative phosphoproteomic profiling, the study unravels phosphorylation events triggered by EGF-RR, delineating its role in cellular proliferation, migration, and differentiation. Bioinformatics Insights and Structural Modeling: Bioinformatics tools facilitate molecular dynamics simulations, offering insights into EGF-RR's receptor interactions and downstream signaling pathways. Structural modeling captures EGF-RR's conformational changes during signaling cascades. Therapeutic Implications and Future Prospects: EGF-RR's intricate signaling dynamics open avenues for therapeutic exploration. Harnessing its potential in wound healing, tissue regeneration, and cancer modulation emerges as a promising avenue for precision medicine. Challenges and Future Directions: Challenges, including context-specific responses, beckon further investigation. Future research should delve into cross-talk between signaling pathways and EGF-RR's contributions to diverse disease contexts. Conclusion: A fusion of advanced methodologies and visionary insights unveils Epidermal Growth Factor Rat Recombinant as an intriguing subject. Its molecular intricacies and complex cellular interplay ignite prospects for therapeutic breakthroughs, ushering in a new era of precision medicine.

References for protein:

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

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. Hynes NE, Lane HA. ERBB receptors and cancer: the complexity of targeted inhibitors. Nat Rev Cancer. 2005;5(5):341-354. 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.