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EGF Rat

Epidermal Growth Factor Rat Recombinant
GRF0037

Product Overview

Name	EGF Rat
Description	
Epidermal Growth Factor Rat Recombinant	
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	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
Rat EGF was lyophilized from a 0.2 µm filtered concentrated (1.0mg/ml) solution in PBS, pH 7.4.	
Stability	
Lyophilized Rat EGF although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution Rat 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	
NSNTGCPPSY DGYCLNGGVC MYVESVDRYV CNCVIGYIGE RCQHRDLRWW KLR.	
Biological Activity	
The ED50 as calculated by the dose-dependant proliferation of murine BALB/c 3T3 cells is less than 0.1ng/ml,	

corresponding to a specific activity of > 10,000,000 units/mg.

Solubility

It is recommended to reconstitute the lyophilized Rat EGF in sterile water not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

Pioneering Insights into Epidermal Growth Factor Rat Recombinant: Unraveling Signaling Dynamics and Therapeutic Implications Abstract: This research paper delves into the unexplored landscape of Epidermal Growth Factor Rat Recombinant (EGF-RR), delving into its intricate molecular attributes, signaling pathways, and potential therapeutic applications. By employing advanced methodologies encompassing protein expression, receptor binding assays, and bioinformatics analyses, this study sheds light on the complex interplay between EGF-RR and cellular responses, offering a new perspective for therapeutic interventions. Introduction: Epidermal Growth Factor (EGF) holds a key role in cellular regulation. This paper navigates the intricacies of Epidermal Growth Factor Rat Recombinant (EGF-RR), focusing on its unique molecular properties and its potential therapeutic implications. Protein Expression and Purification: The paper delves into the meticulous engineering of EGF-RR, involving gene optimization for enhanced expression. Protein purification strategies, such as affinity chromatography, are employed to obtain highly purified EGF-RR for subsequent analyses. Receptor Binding Assays and Ligand Interaction: Advanced receptor binding assays elucidate the interaction of EGF-RR with its cognate receptor. By quantifying binding affinities and kinetic rates, the study unveils the nuances of EGF-RR's engagement with its receptor, shedding light on potential structural determinants. Cellular Signaling Pathways and Functional Responses: Through in vitro cellular assays, the study unravels the intricate signaling pathways initiated by EGF-RR. Quantitative phosphoproteomic analyses expose the dynamic phosphorylation events triggered by EGF-RR, providing insights into its role in cellular proliferation, migration, and differentiation. Bioinformatics Insights and Molecular Modeling: Utilizing advanced bioinformatics tools, molecular dynamics simulations provide a deeper understanding of EGF-RR's interactions with its receptor and potential downstream effectors. Structural modeling unveils the conformational changes driving signaling cascades. Therapeutic Prospects and Novel Avenues: The molecular insights into EGF-RR's signaling dynamics open avenues for therapeutic exploration. Targeted interventions harnessing EGF-RR's potential in wound healing and tissue regeneration, as well as its role in modulating cancer microenvironments, emerge as promising prospects. Challenges and Future Directions: Despite progress, challenges such as deciphering context-dependent signaling responses remain. Future research should focus on unraveling the intricate cross-talk between different signaling pathways and exploring EGF-RR's role in specific disease contexts. Conclusion: In a convergence of advanced methodologies and visionary insights, Epidermal Growth Factor Rat Recombinant emerges as a captivating subject. Its distinctive molecular attributes and complex cellular interplay offer potential avenues for therapeutic interventions, 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 is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P07522)

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References for protein:

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