

EGF Rat

Epidermal Growth Factor Rat Recombinant

GRF0037

Product Overview

Name	EGF Rat
Accession(Primary)	P07522
Description	Epidermal Growth Factor Rat Recombinant

Target information (P07522)

Gene Name

About Gene Symbol

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 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. 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.