

TNF α Human, HEK

Tumor Necrosis Factor-alpha Human Recombinant, HEK

CYK0663

Product Overview

Name	TNF α Human, HEK
Accession(Primary)	P01375
Description	Tumor Necrosis Factor-alpha Human Recombinant, HEK

Target information (P01375)

Gene Name

About Gene Symbol

Background

Tumor Necrosis Factor-alpha Human Recombinant, HEK: An In-Depth Analysis Abstract: Tumor Necrosis Factor-alpha (TNF- α) is a potent cytokine involved in various physiological and pathological processes. This human research paper provides an in-depth analysis of TNF- α Human Recombinant produced in Human Embryonic Kidney (HEK) cells, focusing on its structure, signaling pathways, and diverse functions. Additionally, the paper explores the therapeutic potential of TNF- α modulation in human diseases. Introduction: TNF- α is a key mediator of immune responses and inflammation in humans. This paper aims to provide a comprehensive analysis of TNF- α Human Recombinant produced in HEK cells, highlighting its significance in human physiology and its potential therapeutic applications. Structure and Function of TNF- α : TNF- α is a homotrimeric protein that binds to two distinct receptors, TNFR1 and TNFR2, initiating downstream signaling cascades. It regulates immune cell activation, cytokine production, and cellular responses, influencing diverse biological processes. Signaling Pathways: Upon binding to its receptors, TNF- α activates various signaling pathways, including the NF- κ B pathway, MAPK pathway, and cell death pathways. These pathways regulate gene expression and mediate cellular

responses, affecting inflammation, apoptosis, and tissue homeostasis. Functions of TNF- α : TNF- α plays a crucial role in immune responses, inflammation, and tissue homeostasis. It regulates the activation and migration of immune cells, promotes cytokine production, and modulates cell survival and death. Dysregulation of TNF- α is implicated in the pathogenesis of inflammatory and autoimmune diseases, making it an attractive therapeutic target. Therapeutic Potential: TNF- α modulation has revolutionized the treatment of inflammatory diseases. TNF- α inhibitors, such as monoclonal antibodies and soluble receptors, have shown efficacy in conditions like rheumatoid arthritis, psoriasis, and inflammatory bowel disease. TNF- α -based therapies are being explored for their potential in cancer treatment and immunotherapy. Future Directions: Further research is required to enhance our understanding of TNF- α signaling and its interactions with other molecular pathways in human diseases. Future directions involve personalized medicine approaches, identifying predictive biomarkers, and developing targeted therapies that optimize the therapeutic potential of TNF- α modulation.

References for protein:

Aggarwal, B. B. (2003). Signalling pathways of the TNF superfamily: A double-edged sword. *Nature Reviews Immunology*, 3(9), 745-756. Tracey, D., et al. (2008). Anti-TNF therapy: Past, present, and future. *EXS*, 102, 105-117. Feldmann, M., et al. (2018). Biological insights from clinical trials with anti-TNF therapy. *Seminars in Immunology*, 28(2), 139-147. Kalliolias, G. D., & Ivashkiv, L. B. (2016). TNF biology, pathogenic mechanisms, and emerging therapeutic strategies. *Nature Reviews Rheumatology*, 12(1), 49-62. McInnes, I. B., & Schett, G. (2011). Cytokines in the pathogenesis of rheumatoid arthritis. *Nature Reviews Immunology*, 7(6), 429-442.