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

TNF alpha human

Tumor Necrosis Factor-Alpha Human Recombinant
CYK0558

Product Overview

Name	TNF alpha human
Description	
Tumor Necrosis Factor-Alpha Human Recombinant	
Accession (Primary)	P01375
Synonyms	
TNF-alpha, Tumor necrosis factor ligand superfamily member 2, TNF-a, Cachectin, DIF, TNFA, TNFSF2.	
Introduction	
Tumor necrosis factor is a cytokine involved in systemic inflammation and is a member of a group of cytokines that all stimulate the acute phase reaction. TNF is mainly secreted by macrophages. TNF causes apoptotic cell death, cellular proliferation, differentiation, inflammation, tumorigenesis and viral replication, TNF is also involved in lipid metabolism, and coagulation. TNF's primary role is in the regulation of immune cells. Dysregulation and, in particular, overproduction of TNF have been implicated in a variety of human diseases- autoimmune diseases, INS resistance, and cancer.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
TNF-a Human was lyophilized from a concentrated 1mg/ml solution containing 20mM PB, pH-7.2, and 100mM NaCl.	
Stability	
Lyophilized Tumor Necrosis Factor-a although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution TNF-a 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 95.0% as determined by: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	
Amino acid sequence	
MVRSSSRTPS DKPVAHVVAN PQAEGQLQWL NRRANALLAN GVELRDNQLV VPSEGLYLIY SQVLFKGQGC	

PSTHVLLTHT ISRIAVSYQT KVNLLSAIKS PCQRETPEGA E AKPWYEPIY LGGVFQLEKG DRLSAEINRP DYLDFAESGQ VYFGIIAL.

Biological Activity

The Specific Activity is > 5.0×10 7 IU/mg as determined by the cytolysis of murine L929 cells in the presence of Actinomycin D.

Solubility

It is recommended to reconstitute the lyophilized Tumor Necrosis Factor-alpha in sterile 18MΩ-cm H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

TNF Alpha Human: An Overview of Its Role and Importance in Immunology TNF alpha human, also known as Tumor Necrosis Factor-alpha, is a critical cytokine in the immune system. Macrophages mainly produce this protein, and it plays a key role in inflammation and the acute phase reaction. This protein is involved in various cellular functions, including cell death, differentiation, proliferation, and immune regulation. Production and Properties Tumor Necrosis Factor-alpha is produced recombinantly in E. coli and consists of a single, non-glycosylated polypeptide chain. It includes 157 amino acids of the mature human TNF-alpha and an N-terminal methionine, resulting in a molecular mass of approximately 17.5 kDa. Furthermore, the protein is purified through standard chromatographic techniques to ensure high purity and biological activity. Solubility and Usage The lyophilized form of TNF appears as a sterile, white powder. It is recommended to reconstitute this powder in sterile water to achieve a solution of no less than 100 µg/ml. This solution can then be further diluted for various experimental applications. TNF alpha is used extensively in research, particularly for studying its effects on cell signaling and immune response. Storage and Stability For long-term storage, TNF should be kept desiccated below -18°C. Once reconstituted, it should be used within a week if stored at 4°C or kept below -18°C for future use. Avoiding freeze-thaw cycles is crucial to maintain the protein's functionality. Biological Role and Implications TNF alpha human is involved in the regulation of immune cells and is known for its role in inflammatory processes. Dysregulation of TNF alpha production is linked to various diseases, such as autoimmune disorders, insulin resistance, and cancer. It is also a target for therapeutic interventions, particularly in conditions like rheumatoid arthritis and inflammatory bowel disease. Mechanism of Action TNF alpha can induce fever, apoptotic cell death, and can inhibit tumorigenesis and viral replication. Moreover, it is a potent mediator of the acute phase reaction, which influences the activity of various cells involved in systemic inflammation. Research and Clinical Importance Scientific research on TNF has provided insights into its complex role in disease mechanisms. Its interaction with receptors such as TNFRSF1A underscores its multifaceted effects across different organ systems, from liver function to brain activity. Ongoing studies continue to explore its therapeutic potential, especially how it can be modulated to treat diseases without harmful side effects. In essence, TNF alpha human is a versatile and powerful component of the immune system, important for both health and disease. Understanding its pathways and functions helps scientists develop better treatments for various inflammatory and autoimmune diseases.

Precautions

TNF alpha human is for research use only and not for use in diagnostic or therapeutic procedures.

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Target Information: (P01375)

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