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Certificate of Analysis and Data Sheet

Recombinant Rat Tumor Necrosis Factor-alpha (TNF- α)

Catalog No.
228-11520

Source
Escherichia Coli

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, insulin resistance, and cancer.

Description

Tumor Necrosis Factor-a Rat Recombinant produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 157 amino acids and having a molecular mass of 17339.44 Dalton. The TNF-alpha is purified by standard chromatographic techniques.

Physical Appearance

Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation

The protein was lyophilized without any additives.

Solubility

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

**The products are furnished for LABORATORY RESEARCH USE ONLY.
Not for diagnostic or therapeutic use.**



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Stability

Lyophilized Tumor Necrosis Factor- α although stable at room temperature for 3 weeks, should be stored desiccated below -18°C . Upon reconstitution TNF- α 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

The sequence of the first five N-terminal amino acids was determined and was found to be Met-Leu-Arg-Ser-Ser.

Biological Activity

The ED₅₀ as determined by the cytolysis of murine L929 cells in the presence of Actinomycin D is $< 0.05\text{ng/ml}$, corresponding to a Specific Activity of $5 \times 10^7 \text{ IU/mg}$.

Protein Content

Protein quantitation was carried out by two independent methods:

1. UV spectroscopy at 280 nm using the absorbency value of 1.25 as the extinction coefficient for a 0.1% (1mg/ml) solution. This value is calculated by the PC GENE computer analysis program of protein sequences (IntelliGenetics).
2. Analysis by RP-HPLC, using a calibrated solution of TNF- α as a Reference Standard.

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