

For life science research only.  
Not for use in diagnostic procedures.



# Tumor Necrosis Factor- $\alpha$ , mouse (mTNF- $\alpha$ ) recombinant (*E. coli*)

 **Version: 11**  
Content Version: May 2021

**Cat. No. 11 271 156 001**    2,000,000 U  
5  $\mu$ g, 1ml

**Store product at  $-15$  to  $-25^{\circ}\text{C}$ .**

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# 1. General Information

## 1.1. Contents

Vial / Bottle	Cap	Label	Function / Description	Content
1	red	Tumor Necrosis Factor- $\alpha$ , mouse (mTNF- $\alpha$ )	<ul style="list-style-type: none"> <li>Solution, filtered through 0.2 <math>\mu</math>m pore size membrane.</li> <li>5 <math>\mu</math>g/ml solution in PBS (phosphate buffered saline) and 1 mg/ml BSA (bovine serum albumin).</li> <li><b>i</b> Purity of BSA: &gt;98%, endotoxin (LAL): &lt;1 EU/mg BSA.</li> </ul>	1 bottle, 1 ml

## 1.2. Storage and Stability

### Storage Conditions (Product)

The product is shipped on dry ice.

When stored at  $-15$  to  $-25^{\circ}\text{C}$ , the product is stable through the expiration date printed on the label.

Vial / Bottle	Cap	Label	Storage
1	red	Tumor Necrosis Factor- $\alpha$ , mouse (mTNF- $\alpha$ )	Store in aliquots at $-15$ to $-25^{\circ}\text{C}$ . <b>⚠ Avoid repeated freezing and thawing.</b>

## 1.3. Application

Human TNF- $\alpha$  causes selective necrosis of murine tumors when injected into tumor-bearing mice. Other applications include:

- In vitro* human TNF- $\alpha$  has direct cytolytic or cytostatic activity on certain transformed cells. In this context it acts synergistically with interferon- $\gamma$ .
- Demonstrates important effects on several types of normal cells and may have profound effects on inflammatory reactions, bone resorption, the production and function of granulocytes, hemostasis, and lipid metabolism. In this context, TNF- $\alpha$  is also known as cachectin.
- Potent antiviral activity *in vitro*.

## 2. How to Use this Product

### 2.1. Before you Begin

#### General Considerations

##### Primary structure

One polypeptide chain (156 amino acids) is identical to mouse, natural TNF- $\alpha$ , but not glycosylated.

##### Working Solution

Dilute the concentrated mTNF- $\alpha$  solution (5  $\mu\text{g/ml}$ ) with PBS or culture medium containing BSA or HSA (human serum albumin), 1 mg/ml (0.1%) or 1 to 10% serum.

### 2.2. Parameters

#### Molecular Weight

17.200 Da

#### Purity

$\geq 95\%$  pure as determined by SDS-PAGE.

**i** Endotoxin level:  $\leq 100$  EU/ml (LAL).

#### Specific Activity

$\geq 400$  MU/mg

(mTNF- $\alpha$  NIBSC, 88/532), at least the same specific activity ( $\text{EC}_{50}$ ) compared to the indicated standard is guaranteed.

Mouse, recombinant TNF- $\alpha$  has the same biological activity *in vitro* as mouse, natural TNF- $\alpha$ .

**i** The biological activity of this product may vary in different *in vitro* applications. Determine the optimal concentration range for specific applications.

#### Specificity

Mouse TNF- $\alpha$  is effective on mouse, rat, rabbit, and human cells.

#### Unit Definition

##### $\text{EC}_{50}$ definition

The amount of mTNF- $\alpha$  that is required to mediate half-maximal cytotoxicity (MTT cleavage) with WEHI 164 cells in the presence of actinomycin D (1 unit equals  $\leq 0.0025$  ng/ml).

## 3. Additional Information on this Product

### 3.1. Test Principle

Tumor necrosis factor (TNF) is produced by activated monocytes and macrophages. Murine TNF- $\alpha$  has been highly purified and found to have a molecular weight of 18,000 Da (SDS-PAGE). Under nondenaturing conditions, murine TNF- $\alpha$  has a molecular weight of approximately 40,000 Da suggesting that the native protein associates in an oligomeric form.

#### Homology between Human and Mouse TNF- $\alpha$

Human TNF- $\alpha$  and murine TNF- $\alpha$  show a high degree of homology. Murine TNF- $\alpha$  appears to have a higher specific activity than human TNF- $\alpha$  on murine cell lines, while the converse is true for human cell lines. It has been shown that murine TNF- $\alpha$  is active in the *in vivo* Meth A sarcoma tumor necrosis assay.

#### Preparation

Recombinant murine TNF- $\alpha$  is produced in *E. coli* and purified by standard chromatographic techniques.

### 3.2. Quality Control

For lot-specific certificates of analysis, see section **Contact and Support**.

## 4. Supplementary Information



### 4.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

#### Text convention and symbols

 *Information Note: Additional information about the current topic or procedure.*

 **Important Note: Information critical to the success of the current procedure or use of the product.**

   etc. Stages in a process that usually occur in the order listed.

   etc. Steps in a procedure that must be performed in the order listed.

\* (Asterisk) The Asterisk denotes a product available from Roche Diagnostics.

### 4.2. Changes to previous version

Layout changes.

Editorial changes.

### 4.3. Trademarks

All product names and trademarks are the property of their respective owners.

### 4.4. License Disclaimer

For patent license limitations for individual products please refer to:

**List of biochemical reagent products.**

### 4.5. Regulatory Disclaimer

For life science research only. Not for use in diagnostic procedures.

### 4.6. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

### 4.7. Contact and Support

To ask questions, solve problems, suggest enhancements or report new applications, please visit our **Online Technical Support Site.**

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed.

