

# Cytokines

## Human Recombinant TNF-alpha



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### Tumor necrosis factor alpha

Catalog # 78068.1  
78068

10 µg  
50 µg

## Product Description

Tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) is a pro-inflammatory cytokine that activates NF- $\kappa$ B, MAPK, and PI3K/AKT pathways. Activated T cells and macrophages are the primary producers of TNF- $\alpha$  in response to inflammation and infectious conditions. Many other cell types have been shown to produce TNF- $\alpha$ , among them B cells, NK cells, mast cells, neutrophils, dendritic cells, microglia, endothelial cells, smooth muscle cells, cardiomyocytes, and fibroblasts. TNF- $\alpha$  has cytotoxic effects on cancer cells in vitro by stimulating anti-tumor immunosuppressive responses. TNF- $\alpha$  stimulates expression of E- and P-selectins, thus facilitating adhesion of neutrophils, monocytes, and memory T cells to activated platelets and endothelial cells (Zelová & Hosek). Other effects of TNF- $\alpha$  include vasodilatation and edema formation.

## Product Information

**Alternative Names:** Cachectin, Cachexin, Cytotoxin, DIF, Necrosin, TNF, TNF- $\alpha$ , TNFSF2, Tumor necrosis factor- $\alpha$   
**Accession Number:** P01375  
**Amino Acid Sequence:** MVRSSSRTPS DKPVAHVVAN PQAEGQLQWL NRRANALLAN GVELRDNQLV VPSEGLYLIY SQVLFKGGQC PSTHVLLTHT ISRIAVSYQT KVNLLSAIKS PCQRETPEGA EAKPWYEPIY LGGVVFQLEKG DRLSAEINRP DYLDFAESGQ VYFGIIAL  
**Predicted Molecular Mass:** 17.5 kDa  
**Species:** Human  
**Cross Reactivity:** Mouse, Rat, Monkey  
**Formulation:** Lyophilized from a sterile-filtered aqueous solution containing sodium phosphate, pH 7.5.  
**Source:** E. coli

## Specifications

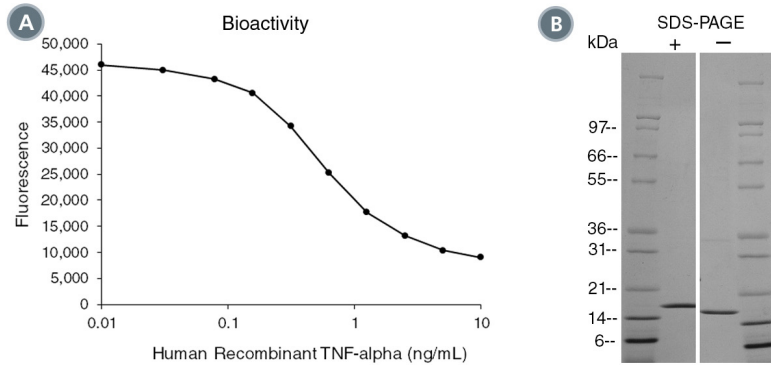
**Activity:** The specific activity is  $\geq 5 \times 10^5$  units/mg ( $EC_{50} \leq 2$  ng/mL) as determined by the cytolysis of mouse L929 cells growing in the presence of actinomycin D.  
**Purity:**  $\geq 95\%$   
**Endotoxin Level:** Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is  $\leq 1$  EU/ $\mu$ g protein.

## Preparation and Storage

**Storage:** Store at -20°C to -80°C.  
**Stability:** Stable as supplied for 12 months from date of receipt.  
**Preparation:** Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

## Data



(A) The biological activity of Human Recombinant TNF-alpha was tested by its ability to induce cytolysis of mouse L929 cells growing in the presence of actinomycin D. Cell viability was measured after 48 hours of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell viability is at 50% of maximum. The EC50 in the above example is 0.4 - 0.6 ng/mL.

(B) 1 µg of Human Recombinant TNF-alpha was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant TNF-alpha has a predicted molecular mass of 17.5 kDa.

## Related Products

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## References

Zelová H & Hošek J. (2013) TNF- $\alpha$  signalling and inflammation: interactions between old acquaintances. *Inflamm Res* 62(7): 641–51.

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