

Recombinant Human Tumor Necrosis Factor α (rhTNF- α)

Catalog#	Quantity	Lot#
TN1001-100	100 μ g	0701

Source: Recombinant human protein expressed in *E. coli*.
Formulation: Powder lyophilized from phosphate-buffered saline (PBS)
Preservative: None.
MW: 17 kDa
Purity: >97% (15% SDS-PAGE)
Sterility: 0.2 μ m membrane-filtered and packaged aseptically.
ED50*: 0.01 - 0.1 ng/ml.
Endotoxin: \leq 0.1 EU/ \square g TNF- α , as determined by Limulus Amebocyte Lysate (LAL) assay
QC Tests: SDS-PAGE, Native PAGE, ELISA, TC

Reconstitution and Use:

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) to a concentration no less than 100 μ g/ml and aliquot for future use. (*If the initial rehydration is too dilute, activity may be lost due to the non-specific adsorption to the container*). The solution can then be further diluted to a working stock solution. Bovine serum albumin can be added to the working solution to protect TNF- α from loss at low concentrations.

Storage and Stability:

Upon receiving, store the product at -20°C. After reconstitution, store the working aliquots at 2-8 °C for no more than 3 months. For extended storage, aliquot the rehydrated solution (\geq 100 μ g/ml) and freeze at -70°C or -20°C. Avoid repeated freezing and thawing. More dilute solutions stored at -20 °C will lose activity faster.

*ED50 Assay:

The ED50 is defined as the effective concentration of TNF- α that causes 50% cytolysis of murine L929B cells, a TNF- α sensitive mouse fibrosarcoma cell line, in the presence of actinomycin-D. Results may vary depending on cell line used. (Havell, E.A., 1987).

About Tumor Necrosis Factor α

Tumor Necrosis Factor-Alpha (TNF- α), also known as cachectin, is named after its activity to cause tumor necrosis *in vivo* when injected into tumor-bearing mice. TNF- α is expressed as a 26 kDa membrane bound protein and is then cleaved by TNF- α converting enzyme (TACE) to release the soluble 17 kDa monomer which forms homotrimers in circulation. Recombinant TNF- α exists as homo-dimer, -trimer or -pentamer. TNF- α is believed to play roles in antitumor activity, immune modulation, inflammation, anorexia, cachexia, septic shock, viral replication and hematopoiesis. TNF- α is expressed in many types of cells but primarily in macrophage cells in response to immunological challenges such as bacteria (lipopolysaccharides), viruses, parasites, mitogens and other cytokines. TNF- α is closely related to the 25 kDa protein Tumor Necrosis Factor- β (lymphotoxin) with 28% amino acid sequence identity, sharing the same receptors (TNFR1 and TNFR2) and cellular actions. TNF- α causes cytolysis or cytostasis of many transformed cells, being synergistic with γ -interferon in its cytotoxicity. Although it has little effect on many cultured normal human cells, TNF- α appears to be directly toxic to vascular endothelial cells. Other actions of TNF- α include stimulating growth of human fibroblasts and other cell lines, activating polymorphonuclear neutrophils and osteoclasts, and induction of interleukin-1, prostaglandin E2 and collagenase production.

References:

- Aggarwal, B., and Reddy, S., Nicola, N., ed., Tumor necrosis factor (TNF) *Guidebook to Cytokines and Their Receptors*, New York (1994), 103-104
- Beutler, B., Sporn, M., and Roberts, A, ed., cachectin/tumor necrosis factor and lymphotoxin *Peptide Growth Factors and their Receptors II*, New York (1991), 39-70
- Ware, C., et al., Thomson, A.W., ed., Tumor necrosis factor-related ligands and receptors. *The Cytokine Handbook* 3rd ed., San Diego, CA (1998), 549