

TNF- α

Recombinant Human Tumor Necrosis Factor α

CAS Number: 94948591
 MDL Number: MFCD00148692

Catalog#	Package size
BX1100-20	20 μ g
BX1100-200	200 μ g
BX1100-1000	1.0 mg

Lot#: 163011
Formulation: Powder lyophilized from volatile buffer 50 mM NH_4HCO_3 (pH 8.0).
Preservative: None.
MW: 17kDa
Purity: >97% (15% SDS-PAGE)
Source: Recombinant protein expressed in *E. coli*.
Sterility: 0.2 μ m membrane-filtered and packaged aseptically.
ED50*: 0.01-0.1ng/ml.
Endotoxin:** \leq 0.1 EU/ μ g TNF- α .
QC Tests: SDS-PAGE, Native PAGE, ELISA, Cytolysis, 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 diluting, 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.

If the product is going to be used for applications requiring absolute asepsis (e.g. cell culture), it's best to filter-sterilize the solution using a sterile and non-pyrogenic 0.2 μ m membrane before use.

Storage and Stability:

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

*Cytolysis 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).

**Endotoxin Assay:

Endotoxin Unit (EU) is determined by Limulus Amebocyte Lysate (LAL) assay (Sigma).

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 ematopoiesis. 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. Although TNF- α is currently being evaluated in treatment of certain cancers and AIDS-related symptoms, the recombinant TNF- α offered by Biomyx is for research only.

Further information:

- 1) Aggarwal, B., and Reddy, S., Nicola, N., ed., Tumor necrosis factor (TNF) *Guidebook to Cytokines and Their Receptors*, New York (1994), 103-104
- 2) 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
- 3) Callard, R., and Gearing, A., *The Cytokine Facts Book*, New York (1994),
- 4) Ruff, M.R. and G.E. Gifford, *Lymphokines 2*: 235, 1981.
- 5) Eskandari, M.K., *et al.*, *Immunol. Invest.* **19**: 69-79, 1990.
- 6) Havell, E.A., *J. Immunol.* **139**: 4225-4231, 1987.
- 7) 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
- 8) Matthews, N., et al., *Lymphokines and Interferons, A Practical Approach*, Clemens, M., et al., eds. IRL Press, 221 (1987).