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TNF-α

Recombinant Human Tumor Necrosis Factor α

CAS Number: 94948591
MDL Number: MFCD00148692

Catalog#	Package size
T1100-20	20 μg
T1100-200	200 μg
T1100-1000	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 μm membrane-filtered and packaged aseptically.
ED50*: 0.01-0.1ng/ml.
Endotoxin:** ≤0.1 EU/μg 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 μg/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 0.2μm membrane before use.

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 (≥100 μg/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.

***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. **13**9: 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).

For research use only, not for use in humans.