TUMOR NECROSIS FACTOR-ALPHA (TNF-α)
HUMAN, RECOMBINANT
Expressed in Yeast

Product Number T 0157

Product Description
Tumor Necrosis Factor-Alpha (TNF-α) is a protein secreted by lipopolysaccharide-stimulated macrophages which causes tumor necrosis in vivo when injected into tumor-bearing mice.\(^1\) Also known as cachectin, TNF-α is believed to mediate pathogenic shock and tissue injury associated with endotoxemia.\(^2\) TNF-α exists as a multimer of two, three, or five non-covalently linked units but shows a single 17 kDa band with SDS-PAGE under non-reducing conditions.\(^3\) The product is closely related to the 25 kDa protein Tumor Necrosis Factor-Beta (lymphotoxin), sharing the same receptors and cellular actions.\(^4\) TNF-α causes cytolysis or cytostasis of certain transformed cells,\(^5,6\) being synergistic with γ-interferon in its cytotoxicity.\(^7\) Although it has little effect on many cultured normal human cells,\(^6\) TNF-α appears to be directly toxic to vascular endothelial cells.\(^8\) Other actions of TNF-α include growth of human fibroblasts, and other cell lines,\(^9\) activation of polymorphonuclear neutrophils\(^10\) and osteoclasts,\(^11\) and induction of interleukin-1, prostaglandin E2 and collagenase production.\(^12,13\) TNF-α is currently being evaluated in treatment of certain cancers and AIDS-Related Complex.

Performance Characteristics
The cytolysis activity of TNF-α against WEHI 164 cells, has been measured in culture using a MTT Cleavage assay. The ED\(_{50}\) is defined as the concentration of TNF-α that mediates half-maximal cytotoxicity in the presence of 1 µg/ml actinomycin D.

Product Information
Expressed in yeast
Purity: ≥95% by SDS-PAGE
ED\(_{50}\): > 1 x 10\(^{8}\) units/mg
Identity: A 1:500 dilution of anti-TNF-α detects 0.01 µg of TNF-α by dot blot immunoassay. A 1:500 dilution of anti-TNF-β shows no reactivity with 0.01 µg of TNF-α.
Mass/vial: 10 µg
Volume/vial: 1 ml
Diluent: Phosphate buffered saline

Carrier Protein: 0.1% BSA
Sterility: Corresponds to USP guidelines
Endotoxin: <10 EU/ml by LAL test.

Reagents
The contents of the vial may be diluted further using a solution that contains 0.1 - 1% BSA or 1-10% serum in buffered saline or tissue culture medium. Suggested concentration range of TNF-α is 0.1-10 ng/ml. If aseptic technique is used, additional filtration should not be necessary and should be avoided due to possible adsorption onto the filter membrane.

Storage/Stability
Vial should be stored at –20 °C. Prolonged storage or repeated freezing and thawing of product is not recommended and will result in decreased biological activity. Aliquots of TNF-α diluted no more than 10-fold may be stored at –20 °C.

References

PCS/KMR 06/02