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Product Information

Monoclonal Anti-Tumor Necrosis Factor-α
Clone 45418.111
produced in mouse, purified immunoglobulin

Catalog Number **T3198**

Synonym: Anti-TNF-α

Product Description

Monoclonal Anti-Tumor Necrosis Factor-α (mouse IgG1) is produced in mouse using purified recombinant rat tumor necrosis factor-α expressed in *E. coli* as immunogen. The antibody is purified from ascites fluid using protein G affinity chromatography.

Monoclonal Anti-Tumor Necrosis Factor-α recognizes recombinant rat tumor necrosis factor-α by various immunochemical techniques, including immunoblotting, neutralization, and ELISA capture. Less than 3% cross-reactivity is observed with recombinant mouse TNF-α and less than 0.2% cross-reactivity is observed with recombinant human TNF-α, recombinant porcine TNF-α, and recombinant human TNF-β.

Tumor necrosis factor-α (TNF-α),[1-5] also called cachectin, is a member of the TNF superfamily of cytokines. 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. TNF-α and the related molecule TNF-β (LT-α) share close structural homology with 28 % amino acid sequence identity and both activate the same TNF receptors, TNF RI and TNF RII.

Tumor necrosis factor-α plays roles in antitumor activity, immune modulation, inflammation, anorexia, cachexia, septic shock, viral replication, and hematopoiesis. It is expressed by a great variety of cells, with numerous inductive and suppressive agents. Primarily, macrophages produce TNF-α in response to immunological challenges such as bacteria (lipopolysaccharides), viruses, parasites, mitogens, and other cytokines. Neutrophils, activated lymphocytes, NK cells, LAK cells, astrocytes, endothelial cells, smooth muscle cells, and some transformed cells also produce TNF-α.

TNF-α is cytotoxic for many transformed cells (its namesake activity), but in normal diploid cells it can stimulate proliferation (fibroblasts), differentiation (myeloid cells), or activation (neutrophils).[5] TNF-α also shows antiviral effects against both DNA and RNA viruses and induces production of several other cytokines.

Reagent

Lyophilized from 0.2 μm-filtered solution in phosphate buffered saline containing carbohydrates.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

To one vial of lyophilized powder, add 1 ml of sterile PBS containing 0.1% human serum albumin or bovine serum albumin to produce a 0.5 mg/ml stock solution.

Storage/Stability

Prior to reconstitution, store at −20 °C. Reconstituted product may be stored at 2-8 °C for at least one month. For prolonged storage, freeze in working aliquots at −20 °C. Avoid repeated freezing and thawing.

Product Profile

Monoclonal Anti-TNF-α has the ability to neutralize the biological activity of recombinant rat TNF-α in the presence of actinomycin D.[6]

The exact concentration of antibody required to neutralize recombinant rat TNF-α activity is dependent on the cytokine concentration, cell type, growth conditions, and the type of activity.

The Neutralization $Dose_{50}$ (ND_{50}) for this antibody is defined as that concentration required to yield one-half maximal inhibition of the TNF-α activity on a responsive cell line, when TNF-α is present at a concentration just high enough to elicit a maximum response.

Immunoblotting: a working concentration of 1-2 μg/ml detects rat TNF-α at ~5 ng/lane under non-reducing and reducing conditions.

Capture ELISAs: Monoclonal Anti-TNF-α can be used as the capture antibody.

Note: In order to obtain the best results in various techniques and preparations, determination of optimal working dilutions by titration test is recommended.

Endotoxin: <10 ng/mg antibody determined by the LAL method.

References

1. Ware, c., et al., Tumor necrosis factor-related ligands and receptors, in The Cytokine Handbook, 3rd Edition, Thomson, A.W., ed., Academic Press (San Diego, CA: 1998), pp. 549-592.
2. Aggarwal, B., and Reddy, S., Tumor necrosis factor (TNF), in Guidebook to Cytokines and Their Receptors, Nicola, N., ed., Oxford Press (New York, NY: 1994), pp. 103-104.
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4. Beutler, B., Cachectin/tumor necrosis factor and lymphotoxin, in Peptide Growth Factors and their Receptors II, Sporn, M., and Roberts, A., eds., Springer-Verlag, (New York, NY: 1991), pp. 39-70.
5. Beutler, B., and Cerami, A., The history, properties, and biological effects of cachectin. *Biochemistry*, **27**, 7575-7582 (1988).
6. Matthews, N., et al., Lymphokines and Interferons, in A Practical Approach, Clemens, A.G., et al., eds., IRL Press, (Oxford: 1987) p. 221.

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