

DESCRIPTION

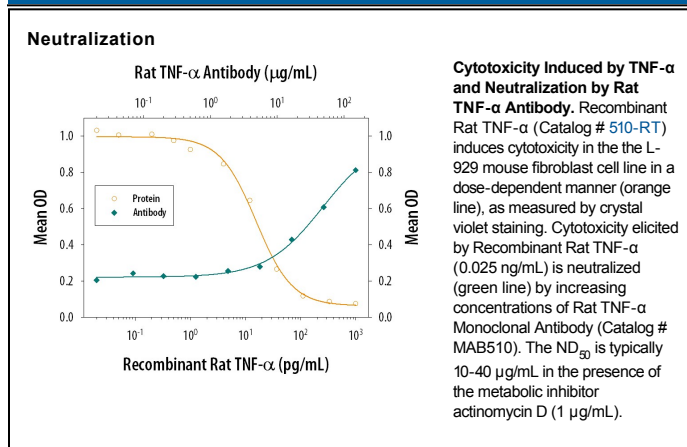
Species Reactivity	Rat
Specificity	Detects rat TNF- α in ELISAs and Western blots. In ELISAs, this antibody shows less than 3% cross-reactivity with recombinant mouse (rm) TNF- α and less than 0.2% cross-reactivity with rhTNF- α , rpTNF- α , and rhTNF- β . In Western blots, this antibody shows 100% cross-reactivity with rmTNF- α and no cross-reactivity with rfeTNF- α .
Source	Monoclonal Mouse IgG ₁ Clone # 45418
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant rat TNF- α Accession # P16599
Endotoxin Level	<0.10 EU per 1 μ g of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 μ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 μ m filtered solution in PBS.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Western Blot	1 μ g/mL	Recombinant Rat TNF- α (Catalog # 510-RT)
Rat TNF-α Sandwich Immunoassay		Reagent
ELISA Capture	2-8 μ g/mL	Rat TNF- α Antibody (Catalog # MAB510)
ELISA Detection	0.1-0.4 μ g/mL	Rat TNF- α Biotinylated Antibody (Catalog # BAF510)
Standard		Recombinant Rat TNF- α (Catalog # 510-RT)
Neutralization	Measured by its ability to neutralize TNF- α -induced cytotoxicity in the L-929 mouse fibroblast cell line. Matthews, N. and M.L. Neale (1987) in <i>Lymphokines and Interferons, A Practical Approach</i> . Clemens, M.J. <i>et al.</i> (eds): IRL Press. 221. The Neutralization Dose (ND ₅₀) is typically 10-40 μ g/mL in the presence of 0.025 ng/mL Recombinant Rat TNF- α .	

DATA



PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Tumor Necrosis Factor Alpha (TNF- α) also known as Cachectin, is the prototypic ligand of the TNF superfamily. It is a pleiotropic molecule that plays a central role in inflammation, apoptosis, and immune system development. TNF- α is produced by a wide variety of immune and epithelial cell types (1, 2). Rat TNF- α consists of a 35 amino acid (aa) cytoplasmic domain, a 21 aa transmembrane segment, and a 179 aa extracellular domain (ECD) (3). Within the ECD, rat TNF- α shares 94% aa sequence identity with mouse and 69-76% with bovine, canine, cotton rat, equine, feline, human, porcine, and rhesus macaque TNF- α . The 26 kDa type 2 transmembrane protein is assembled intracellularly to form a noncovalently linked homotrimer (4). Ligation of this complex induces reverse signaling that promotes lymphocyte co-stimulation but diminishes monocyte responsiveness (5). Cleavage of membrane bound TNF- α by TACE/ADAM17 releases a 55 kDa soluble trimeric form of TNF- α (6, 7). TNF- α trimers bind the ubiquitous TNF RI and the hematopoietic cell-restricted TNF RII, both of which are also expressed as homotrimers (1, 8). TNF- α regulates lymphoid tissue development through control of apoptosis (2). It also promotes inflammatory responses by inducing the activation of vascular endothelial cells and macrophages (2). TNF- α is a key cytokine in the development of several inflammatory disorders (9). It contributes to the development of type 2 diabetes through its effects on insulin resistance and fatty acid metabolism (10, 11).

References:

1. Idriss, H.T. and J.H. Naismith (2000) *Microsc. Res. Tech.* **50**:184.
2. Hehlgans, T. and K. Pfeffer (2005) *Immunology* **115**:1.
3. Estler, H.C. *et al.* (1992) *Biol. Chem. Hoppe-Seyler* **373**:271.
4. Tang, P. *et al.* (1996) *Biochemistry* **35**:8216.
5. Eissner G. *et al.* (2004) *Cytokine Growth Factor Rev.* **15**:353.
6. Black, R.A. *et al.* (1997) *Nature* **385**:729.
7. Moss, M.L. *et al.* (1997) *Nature* **385**:733.
8. Loetscher, H. *et al.* (1991) *J. Biol. Chem.* **266**:18324.
9. Clark, I.A. (2007) *Cytokine Growth Factor Rev.* **18**:335.
10. Romanatto, T. *et al.* (2007) *Peptides* **28**:1050.
11. Hector, J. *et al.* (2007) *Horm. Metab. Res.* **39**:250.