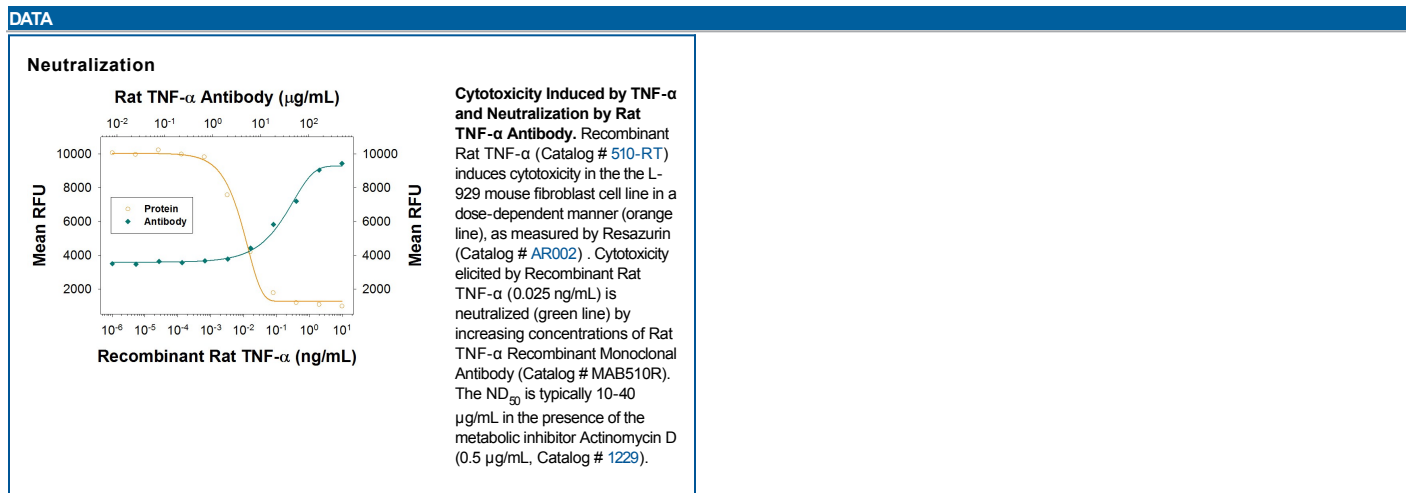


DESCRIPTION	
<b>Species Reactivity</b>	Rat
<b>Specificity</b>	Detects rat TNF- $\alpha$ in direct ELISAs. In ELISAs, this antibody shows less than 3% cross-reactivity with recombinant mouse (rm) TNF- $\alpha$ and less than 0.2% cross-reactivity with rhTNF- $\alpha$ , rpTNF- $\alpha$ , and rhTNF- $\beta$ .
<b>Source</b>	Recombinant Monoclonal Mouse IgG <sub>1</sub> Clone # 45418R
<b>Purification</b>	Protein A or G purified from cell culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant rat TNF- $\alpha$ Accession # P16599
<b>Endotoxin Level</b>	<0.10 EU per 1 $\mu$ g of the antibody by the LAL method.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 $\mu$ m filtered solution in PBS.

APPLICATIONS	
<b>Please Note:</b> Optimal dilutions should be determined by each laboratory for each application. <i>General Protocols</i> are available in the <i>Technical Information</i> section on our website.	
<b>Rat TNF-<math>\alpha</math> Sandwich Immunoassay</b>	<b>Reagent</b>
<b>ELISA Capture</b>	2-8 $\mu$ g/mL Rat TNF- $\alpha$ Antibody (Catalog # <a href="#">MAB510R</a> )
<b>ELISA Detection</b>	0.1-0.4 $\mu$ g/mL Rat TNF- $\alpha$ Biotinylated Antibody (Catalog # <a href="#">BAF510</a> )
<b>Standard</b>	Recombinant Rat TNF- $\alpha$ (Catalog # <a href="#">510-RT</a> )
<b>Neutralization</b>	Measured by its ability to neutralize TNF- $\alpha$ -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. et al. (eds): IRL Press. 221. The Neutralization Dose (ND <sub>50</sub> ) is typically 10-40 $\mu$ g/mL in the presence of 0.025 ng/mL Recombinant Rat TNF- $\alpha$ and 0.5 $\mu$ g/mL Actinomycin D.



PREPARATION AND STORAGE	
<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	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
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

Tumor Necrosis Factor Alpha (TNF- $\alpha$ ) 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- $\alpha$  is produced by a wide variety of immune and epithelial cell types (1, 2). Rat TNF- $\alpha$  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- $\alpha$  shares 94% aa sequence identity with mouse and 69-76% with bovine, canine, cotton rat, equine, feline, human, porcine, and rhesus macaque TNF- $\alpha$ . 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- $\alpha$  by TACE/ADAM17 releases a 55 kDa soluble trimeric form of TNF- $\alpha$  (6, 7). TNF- $\alpha$  trimers bind the ubiquitous TNF RI and the hematopoietic cell-restricted TNF RII, both of which are also expressed as homotrimers (1, 8). TNF- $\alpha$  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- $\alpha$  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).

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