

#### DESCRIPTION

<b>Species Reactivity</b>	Rhesus Macaque
<b>Specificity</b>	Detects rhesus macaque TNF- $\alpha$ in ELISAs and Western blots. In sandwich immunoassays, approximately 90% cross-reactivity with recombinant human (rh) TNF- $\alpha$ is observed and less than 0.1% cross-reactivity with rcaTNF- $\alpha$ , rcrTNF- $\alpha$ , rmTNF- $\alpha$ , rpTNF- $\alpha$ , rrTNF- $\alpha$ , and reqTNF- $\alpha$ is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant rhesus macaque TNF- $\alpha$ (R&D Systems, Catalog # 1070-RM) Val77-Leu233 Accession # P48094
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

#### 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
<b>Western Blot</b>	0.1 $\mu$ g/mL	Recombinant Rhesus Macaque TNF- $\alpha$ (Catalog # 1070-RM)
<b>Rhesus Macaque TNF-<math>\alpha</math> Sandwich Immunoassay</b>		<b>Reagent</b>
<b>ELISA Capture</b>	2-8 $\mu$ g/mL	Rhesus Macaque TNF- $\alpha$ Antibody (Catalog # MAB10702)
<b>ELISA Detection</b>	0.1-0.4 $\mu$ g/mL	Rhesus Macaque TNF- $\alpha$ Biotinylated Antibody (Catalog # BAF1070)
<b>Standard</b>		Recombinant Rhesus Macaque TNF- $\alpha$ (Catalog # 1070-RM)

#### PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 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.
<b>Stability &amp; Storage</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <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 and TNFSF2, 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). Rhesus TNF- $\alpha$  consists of a 35 amino acid (aa) cytoplasmic domain, a 21 aa transmembrane segment, and a 177 aa extracellular domain (ECD) (3). Within the ECD, rhesus TNF- $\alpha$  shares 97% aa sequence identity with human and 71% - 92% with bovine, canine, cotton rat, equine, feline, mouse, porcine, and rat 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 costimulation 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).

#### 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. Villinger, F. *et al.* (1995) *J. Immunol.* **155**:3946.
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.