

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human TNF- $\alpha$ in ELISAs and Western blots. In sandwich immunoassays, less than 0.04% cross-reactivity with recombinant human (rh) TNF- $\beta$ , recombinant mouse (rm) TNF- $\alpha$ , recombinant rat TNF- $\alpha$ , recombinant porcine TNF- $\alpha$ , rhsTNF RII, rmsTNF RI, and rmsTNF RII is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human TNF- $\alpha$ (R&D Systems, Catalog # 210-TA) Val77-Leu233 Accession # P01375
<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.

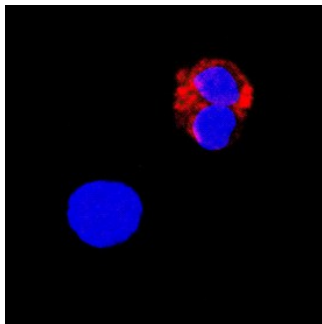
## APPLICATIONS

**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 Human TNF- $\alpha$ (Catalog # 210-TA)
<b>Immunocytochemistry</b>	5-15 $\mu$ g/mL	See Below
<b>Human TNF-<math>\alpha</math> Sandwich Immunoassay</b>		<b>Reagent</b>
<b>ELISA Capture</b>	2-8 $\mu$ g/mL	Human TNF- $\alpha$ Antibody (Catalog # MAB610)
<b>ELISA Capture</b>	2-8 $\mu$ g/mL	Human TNF- $\alpha$ Antibody (Catalog # MAB610R)
<b>ELISA Detection</b>	0.1-0.4 $\mu$ g/mL	Human TNF- $\alpha$ Biotinylated Antibody (Catalog # BAF210)
<b>Standard</b>		Recombinant Human TNF- $\alpha$ (Catalog # 210-TA)

## DATA

### Immunocytochemistry



**TNF- $\alpha$  in Human PBMCs.** TNF- $\alpha$  was detected in immersion fixed human peripheral blood mononuclear cells (PBMCs) using Goat Anti-Human TNF- $\alpha$  Biotinylated Antigen Affinity-purified Polyclonal Antibody (Catalog # BAF210) at 5  $\mu$ g/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Streptavidin (red; Catalog # NL999) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for [Fluorescent ICC Staining of Non-adherent Cells](#).

## 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). Human 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, human TNF- $\alpha$  shares 97% aa sequence identity with rhesus 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:**

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