

**DESCRIPTION**

|                           |   |
|---------------------------|---|
| <b>Species Reactivity</b> | Bovine  |
| <b>Specificity</b>        | Detects bovine TNF- $\alpha$ in ELISAs and Western blots. In sandwich immunoassays, less than 0.3% cross-reactivity with recombinant human TNF- $\alpha$ , recombinant mouse TNF- $\alpha$ , recombinant rat TNF- $\alpha$ , recombinant feline TNF- $\alpha$ , recombinant equine TNF- $\alpha$ , recombinant porcine TNF- $\alpha$ , recombinant cotton rat TNF- $\alpha$ , and recombinant rhesus macaque TNF- $\alpha$ is observed. |
| <b>Source</b>             | Polyclonal Goat IgG   |
| <b>Purification</b>       | Antigen Affinity-purified   |
| <b>Immunogen</b>          | <i>E. coli</i> -derived recombinant bovine TNF- $\alpha$<br>Leu78-Leu234<br>Accession # Q06599  |
| <b>Formulation</b>        | Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details.<br>*Small pack size (-SP) is supplied as a 0.2 $\mu$ m filtered solution in PBS.   |

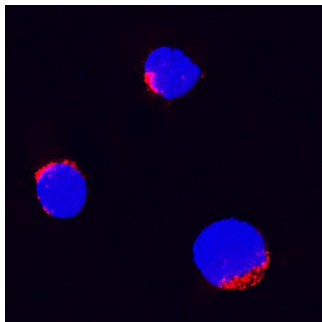
**APPLICATIONS**

**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.

|  | <b>Recommended Concentration</b> | <b>Sample</b>  |
|--|----------------------------------|--|
| <b>Western Blot</b>  | 0.1 $\mu$ g/mL                   | Recombinant Bovine TNF- $\alpha$ (Catalog # 2279-BT)   |
| <b>Immunocytochemistry</b>                                 | 5-15 $\mu$ g/mL                  | See Below  |
| <b>Bovine TNF-<math>\alpha</math> Sandwich Immunoassay</b> |                                  | <b>Reagent</b>   |
| <b>ELISA Capture</b>                                       | 0.2-0.8 $\mu$ g/mL               | Bovine TNF- $\alpha$ Antibody (Catalog # AF2279)   |
| <b>ELISA Detection Standard</b>                            | 0.1-0.4 $\mu$ g/mL               | Bovine TNF- $\alpha$ Biotinylated Antibody (Catalog # BAF2279)<br>Recombinant Bovine TNF- $\alpha$ (Catalog # 2279-BT) |

**DATA**

**Immunocytochemistry**



**TNF- $\alpha$  in Bovine PBMCs.** TNF- $\alpha$  was detected in immersion fixed bovine peripheral blood mononuclear cells (PBMCs) using Goat Anti-Bovine TNF- $\alpha$  Antigen Affinity-purified Polyclonal Antibody (Catalog # AF2279) at 15  $\mu$ g/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) 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.<br>*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 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). Bovine TNF- $\alpha$  consists of a 35 amino acid (aa) cytoplasmic domain, a 21 aa transmembrane segment, and a 178 aa extracellular domain (ECD) (3). Within the ECD, bovine TNF- $\alpha$  shares 64%-83% sequence identity with canine, cotton rat, equine, feline, human, mouse, porcine, rat, and rhesus 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 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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