

## APC Anti-Mouse TNF- $\alpha$ Antibody

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|---------------------------|------------------------------------------------------------------------------------------------|
| <b>Catalog Number:</b>    | 203305, 203306                                                                                 |
| <b>Size:</b>              | 25 tests, 100 tests                                                                            |
| <b>Target Name:</b>       | TNF- $\alpha$ , TNF-alpha, Tumor necrosis factor- $\alpha$ , Macrophage cytotoxic factor (MCF) |
| <b>Regulatory Status:</b> | RUO                                                                                            |

### PRODUCT DETAILS

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| <b>Clone:</b>                 | MP6-XT22                                                                                                                                                                                                                                                                                            |
| <b>Application:</b>           | Intracellular Flow Cytometry                                                                                                                                                                                                                                                                        |
| <b>Reactivity:</b>            | Mouse                                                                                                                                                                                                                                                                                               |
| <b>Format:</b>                | APC                                                                                                                                                                                                                                                                                                 |
| <b>Isotype:</b>               | Rat IgG1                                                                                                                                                                                                                                                                                            |
| <b>Antibody Type:</b>         | Monoclonal                                                                                                                                                                                                                                                                                          |
| <b>Formulation:</b>           | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA                                                                                                                                                                                                               |
| <b>Protein Concentration:</b> | Supplied at a lot-specific concentration.                                                                                                                                                                                                                                                           |
| <b>Storage&amp;Handling:</b>  | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.                                                                                                                                                                |
| <b>Recommended Usage:</b>     | For flow cytometric staining, it is recommended to use 5 $\mu$ L of this reagent per 0.5-1.0 million cells in a 100 $\mu$ L volume. Optimal reagent performance should be determined by titration for each specific application. APC has an excitation max at 650 nm and an emission max at 660 nm. |
| <b>Excitation Laser:</b>      | Red Laser (633 nm)                                                                                                                                                                                                                                                                                  |
| <b>Isotype Controls:</b>      | 303410                                                                                                                                                                                                                                                                                              |
| <b>Antibody Family:</b>       | Mouse Antibodies                                                                                                                                                                                                                                                                                    |

### BACKGROUND INFORMATION

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Mouse tumor necrosis factor-alpha (TNF- $\alpha$ ) is a pro-inflammatory cytokine produced primarily by activated macrophages, T cells, and other immune cells. It plays a central role in innate and adaptive immunity by regulating inflammation, cell survival, apoptosis, and immune cell activation. TNF- $\alpha$  is rapidly induced in response to infection or tissue injury and helps coordinate host defense by promoting cytokine production, leukocyte recruitment, and pathogen clearance.

Structurally, TNF- $\alpha$  is initially synthesized as a type II transmembrane protein that can be cleaved by metalloproteases such as TACE (ADAM17) to release a soluble form. Both membrane-bound and soluble TNF- $\alpha$  function as homotrimers, which are the biologically active forms. TNF- $\alpha$  exerts its effects by binding to two receptors, TNFR1 (p55) and TNFR2 (p75), which differ in expression patterns and downstream signaling pathways.

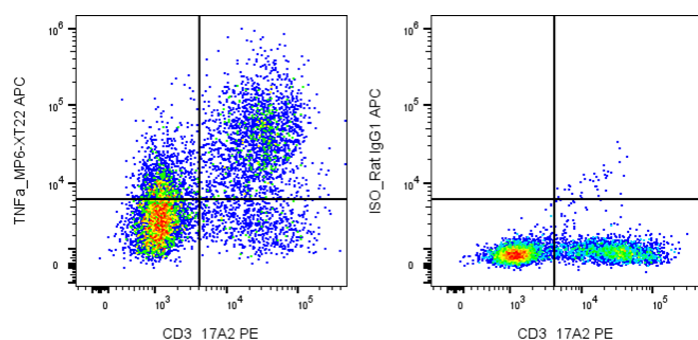
The primary ligands for TNF receptors are TNF- $\alpha$  itself and the related cytokine lymphotoxin- $\alpha$ . Engagement of TNFR1 often leads to

activation of NF- $\kappa$ B and MAPK pathways or induction of apoptosis, while TNFR2 is more associated with immune regulation and cell survival.

In disease, dysregulated TNF- $\alpha$  production contributes to chronic inflammatory and autoimmune conditions in mouse models, including arthritis, colitis, and sepsis. Therapeutically, TNF- $\alpha$  is a major target in inflammatory disease, and anti-TNF biologics have been widely developed. In mice, TNF modulation is also used experimentally to study inflammation, cancer immunity, and immune-mediated pathology.

## PRODUCT DATA

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PMA + Ionomycin-stimulated mouse splenocytes were stained with PE anti-Mouse CD3 clone 17A2, fixed, permeabilized, and then stained with APC anti-Mouse TNF- $\alpha$  clone MP6-XT22 (left) or an isotype control (right).

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