

iF647 Anti-Human TNF- α Antibody

Catalog Number:	113301, 113302
Size:	25 tests, 100 tests
Target Name:	TNF- α , TNF-alpha, Tumor necrosis factor- α , Macrophage cytotoxic factor (MCF)
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	Adalimumab
Application:	Flow Cytometry
Reactivity:	Human
Format:	iF647
Isotype:	Human IgG1
Antibody Type:	Monoclonal
Formulation:	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA
Protein Concentration:	Supplied at a lot-specific concentration.
Storage&Handling:	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.
Recommended Usage:	For flow cytometric staining, it is recommended to use 5 μ L of this reagent per 0.5-1.0 million cells in a 100 μ L volume. Optimal reagent performance should be determined by titration for each specific application. iF647 has an excitation max at 656 nm and an emission max at 670 nm.
Excitation Laser:	Red Laser (633 nm)
Isotype Control:	301207

BACKGROUND INFORMATION

TNF α (tumor necrosis factor alpha) is a potent pro-inflammatory cytokine that plays a central role in immune regulation, host defense, and inflammation. It is primarily produced by activated macrophages, T cells, and other immune cells in response to infection, injury, or immune stimulation. TNF α mediates a wide range of biological effects, including induction of fever, activation of endothelial cells, promotion of leukocyte recruitment, and regulation of cell survival, apoptosis, and necrosis.

Structurally, TNF α is initially synthesized as a type II transmembrane protein (membrane-bound TNF α) that forms stable homotrimers. It can be cleaved by the metalloprotease TACE (ADAM17) to release a soluble trimeric form. Both membrane-bound and soluble TNF α are biologically active, although they may have distinct functional roles. The trimeric structure is essential for binding and activating its receptors.

The primary receptors for TNF α are TNFR1 (p55, CD120a) and TNFR2 (p75, CD120b). TNFR1 is widely expressed and contains a death domain that can trigger apoptosis or activate NF- κ B signaling pathways, leading to inflammation and cell survival. TNFR2 is

more restricted in expression and is mainly involved in immune regulation and tissue repair. The interaction between TNF α and its receptors initiates complex signaling cascades that determine cellular outcomes.

In disease, TNF α is a key driver of chronic inflammatory and autoimmune conditions, including rheumatoid arthritis, inflammatory bowel disease, psoriasis, and ankylosing spondylitis. Excessive or dysregulated TNF α production contributes to tissue damage and disease progression. TNF α is also involved in cancer, infection, and sepsis, where it can have both protective and pathological effects.

Therapeutically, TNF α is one of the most successfully targeted cytokines in modern medicine. Anti-TNF biologics, such as monoclonal antibodies and receptor fusion proteins, have revolutionized the treatment of inflammatory diseases by neutralizing TNF α activity. These therapies reduce inflammation and improve clinical outcomes, although they may increase susceptibility to infections due to immune suppression.

This product is supplied subject to the terms and conditions at www.innocyto.com/web/terms.php and may only be used as provided in the stated terms. Products are for Research Use Only.