

## ELISpot Human TNF- $\alpha$

### Product Details

#### Application

The Human TNF- $\alpha$  Enzyme-Linked ImmunoSpot (ELISpot) assay is a highly sensitive method used to detect and quantify individual cells that secrete specific cytokines or other soluble molecules. This assay is utilized in immunology to monitor cellular immune responses at the single-cell level and reliably detects and measures human TNF- $\alpha$  secretion by stimulated effector cells.

#### Description

TNF- $\alpha$  is a multifunctional cytokine involved in both innate and adaptive immunity. It is produced primarily by activated macrophages, T cells, and Natural Killer cells, during immune responses, but can also be produced by other cell types, including neutrophils, mast cells, and endothelial cells.

As a proinflammatory cytokine, TNF- $\alpha$  plays a crucial role in the inflammatory response. It activates endothelial cells, promoting the recruitment of immune cells to sites of infection or injury, and enhances the microbicidal activity of macrophages. TNF- $\alpha$  regulates immune responses by modulating the activity of various immune cells, including T cells and antigen-presenting cells. It is critical for both innate and adaptive immunity against a wide range of pathogens, including viruses, bacteria, and parasites, due to its ability to induce apoptosis in infected cells and enhance the production of other inflammatory cytokines.

TNF- $\alpha$  also stimulates the production of acute-phase proteins and other mediators of inflammation, contributing to the systemic effects observed during severe infections and chronic inflammatory diseases. Aberrant TNF- $\alpha$  expression is associated with a variety of inflammatory and autoimmune conditions, including rheumatoid arthritis, inflammatory bowel disease, and psoriasis, highlighting its significance in immune regulation and potential as a therapeutic target.

#### Product Specifications

Product	ELISpot Human TNF- $\alpha$ kit
Application	ELISpot
Analyte	TNF- $\alpha$
Reactivity	Human
Specificity	Human IFN- $\gamma$ .
Storage	Store plates and reagents between 2 and 8°C
Shelf life	18 months from date of receipt.

**Kit content**

Peptide pools	No peptide pool included – plate and reagents only
Plate	ELISpot plate precoated with TNF- $\alpha$ capture antibody
Detection mAb	Biotinylated recombinant TNF- $\alpha$ antibody
Enzyme conjugate	Streptavidin-ALP (Alkaline Phosphatase)
Substrate	BCIP/NBT Ready-to-use solution
Blocking agent	Bovine Serum Albumin (BSA)