

Human IFN- γ ELISpot Kit

PRODUCT SPECIFICATIONS

Catalogue N°	856.051.001PC - 1 x 96 Discovery (pre-coated plate) 856.051.002PC - 2 x 96 (pre-coated plates) 856.051.005PC - 5 x 96 (pre-coated plates)
Target species	Human
Specificity	Recognizes natural human IFN-g
Incubation	3h after cell stimulation
Cross Reaction	No cross reactivity with other human cytokines. Cross reactivity with simian IFN-g.
Kit Content	Diaclone Pre-coated ELISpot kits include precoated PVDF plates, Detection antibody, Alkaline phosphatase conjugate, BSA, BCIP/NBT ready-to-use substrate buffer.
Synonym	IFN-g IFN-gamma

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BACKGROUND

Interferon-gamma (IFN- γ , IFN-g, IFN gamma), also known as type II or immune interferon, is a dimerized soluble cytokine.

Interferon gamma is produced mainly by activated T cells and Natural Killer cells as part of the innate immune response, and by CD4 Th1 and CD8 cytotoxic T lymphocyte (CTL) effector T cells once antigen-specific immunity develops. IFN gamma is also produced by non-cytotoxic innate lymphoid cells (ILC), a family of immune cells first discovered in the early 2010s

IFN γ is considered to be a proinflammatory cytokine, that activates macrophages and endothelial cells, it also regulates immune responses by effecting APC, and T cells.

IFN gamma is a cytokine that is critical for innate and adaptive immunity against viral, some bacterial and protozoal infections. IFN gamma is an important activator of macrophages and inducer of Class II major histocompatibility complex (MHC) molecule expression. Aberrant IFN γ expression is associated with a number of autoinflammatory and autoimmune diseases. The importance of IFN γ in the immune system stems in part from its ability to inhibit viral replication directly, and most importantly from its immunostimulatory and immunomodulatory effects.

Different populations of T-cells secrete differing patterns of cytokines that ultimately lead to different immune responses. IFN γ production is a key function of Th1, CD8+ CTLs and also NK cells. It is a cytokine critical for cell mediated immunity against viral and intracellular bacterial infections and is involved in the inflammatory response following secretion via macrophage activation and stimulation of antibody secretion. IFN is the hallmark effector cytokine of Th1 and therefore is an excellent marker for identifying a host response to intracellular pathogens.

IFN is produced during infection by T cells of the cytotoxic/suppressor phenotype (CD8) and by a subtype of helper T cells, the Th1 cells. Th1 cells secrete IL-2, IL-3, TNF α and IFN γ , whereas Th2 cells mainly produce IL-3, IL-4, IL-5, and IL-10, but little or no IFN γ . IFN γ preferentially inhibits the proliferation of Th2 but not Th1 cells, indicating that the presence of IFN γ during an immune response will result in the preferential proliferation of Th1 cells.

In addition, IFN γ has several properties related to immunoregulation. IFN γ is a potent activator of mononuclear phagocytes, and activates macrophages to kill tumor cells by releasing reactive oxygen intermediates and TNF α . IFN γ induces or augments the expression of MHC antigens on macrophages, T and B cells and some tumor cell lines. On T and B cells IFN γ promotes differentiation. It enhances proliferation of activated B cells and can act synergistically with IL-2 to increase immunoglobulin light-chain synthesis.

The role of IFN γ as a disease marker has been demonstrated for a number of different pathological situations including, viral infection, autoimmune disease, transplant rejection, diabetes and allergy.