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InnoCyto Inc.

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Recombinant Human IFNγ protein

Catalog Number:	631801, 631802
Size:	20 μg, 100 μg
Target Name:	IFNγ. Interferon-γ, Immune interferon, T cell interferon, Macrophage-activating factor (MAF), Type II inter
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	Bioassay
Format:	Lyophilized from sterile 50mM Tris, pH 8.0.
Expression Host:	E.coli
Species:	Human
accession number:	NP_000610.2
Sources:	A DNA sequence encoding the human IFNγ (NP_000610.2) (Gln24-Gln166) was expressed with an N-terminal Met.
Molecular Weight:	The recombinant human IFNγ consists of 144 amino acids and predicts a molecular mass of 16.91 kDa. The molecular weight of this protein is around 35.4 kDa verified by SEC-MALS (Routinely tested).
Affinity Tag:	None
Purity:	≥ 95 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
Endotoxin level:	
Protein Concentration:	Lyophilized
Storage and Handling:	Samples are stable for up to twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.

BACKGROUND INFORMATION

Human interferon-gamma (IFN-γ) is a key immunoregulatory cytokine primarily produced by activated T lymphocytes, particularly $CD4^+$ Th1 cells, $CD8^+$ cytotoxic T cells, and natural killer (NK) cells. It plays a central role in innate and adaptive immunity by enhancing macrophage activation, promoting antigen presentation through upregulation of MHC class I and II molecules, and driving Th1 polarization. IFN-γ is critical for host defense against intracellular pathogens such as viruses and certain bacteria, and it also contributes to immune surveillance against tumors.

Structurally, IFN-γ is a homodimeric protein, with each monomer approximately 17 kDa, forming a biologically active ~34 kDa dimer. It belongs to the type II interferon family and adopts a six α-helix bundle structure. IFN-γ signals through a heterodimeric receptor composed of IFNGR1 and IFNGR2 chains. Upon ligand binding, receptor-associated Janus kinases (JAK1 and JAK2) are activated, leading to phosphorylation of STAT1 and induction of interferon-stimulated genes. Unlike type I interferons, IFN-γ has a

more specialized role in immune modulation rather than broad antiviral signaling.

Dysregulation of IFN-γ is implicated in a range of diseases. Excessive IFN-γ activity contributes to autoimmune and inflammatory disorders such as rheumatoid arthritis and certain forms of colitis, while insufficient IFN-γ responses can result in increased susceptibility to infections. IFN-γ is also involved in cytokine storm syndromes. Therapeutically, recombinant IFN-γ has been approved for conditions like chronic granulomatous disease to enhance microbial killing. Conversely, strategies to inhibit IFN-γ signaling are being explored for treating autoimmune diseases and hyperinflammatory states, highlighting its dual role as both a protective and pathogenic mediator.

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