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# Recombinant Human IFNγ protein

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| **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

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| **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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