

# PRODUCT INFORMATION



## IFN- $\gamma$ (human, recombinant)

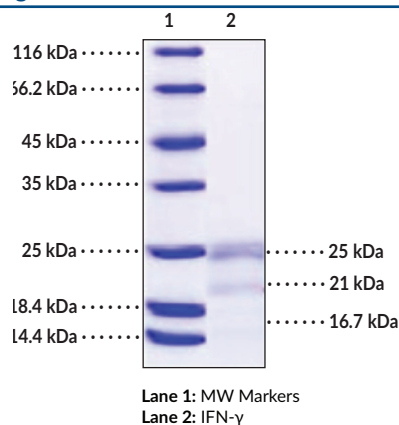
Item No. 32008

### Overview and Properties

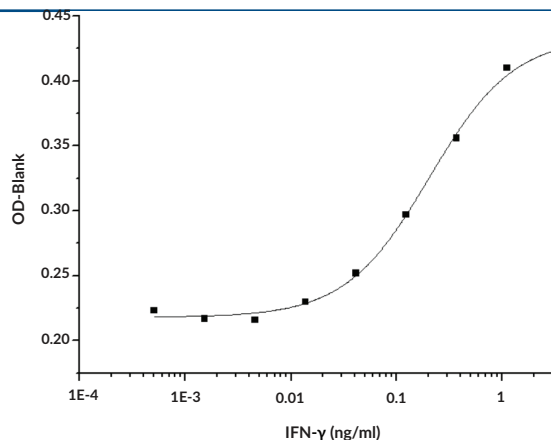
**Synonyms:** IFG, IFI, Interferon- $\gamma$ , Type II Interferon  
**Source:** Active recombinant human IFN- $\gamma$  expressed in CHO cells  
**Amino Acids:** 24-166  
**Molecular Weight:** 16.7 kDa  
**Storage:** -80°C (as supplied)  
**Stability:**  $\geq 1$  year  
**Purity:**  $\geq 92\%$  estimated by SDS-PAGE  
**Supplied in:** Lyophilized from sterile PBS, pH 7.4, with 5% trehalose, 5% mannitol, and 0.01% Tween 80  
**Endotoxin Testing:**  $< 1.0$  EU/ $\mu$ g, determined by the LAL endotoxin assay  
**Bioactivity:** See figures for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



**SDS-PAGE Analysis of IFN- $\gamma$ .** This protein has a calculated molecular weight of 16.7 kDa. It has an apparent molecular weight of approximately 21 to 25 kDa in SDS-PAGE under reducing conditions due to glycosylation.



**IFN- $\gamma$  activity in antiviral assay.** IFN- $\gamma$  activity is measured in antiviral assays using WISH human amnion cells infected with vesicular stomatitis virus (VSV). The  $EC_{50}$  value for this effect is typically 0.1-0.5 ng/ml.

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

Interferon  $\gamma$  (IFN- $\gamma$ ) is a cytokine and type II interferon with roles in innate and adaptive immunity.<sup>1</sup> It is initially produced by natural killer (NK) and natural killer T (NKT) cells as part of the innate immune response to pathogens, and then by CD4<sup>+</sup> T helper (Th1) cells and CD8<sup>+</sup> cytotoxic effector T cells as adaptive antigen-specific immunity is developed.<sup>1,2</sup> IFN- $\gamma$  production is induced in response to pathogen-induced secretion of IL-12 and IL-18 by macrophages and is inhibited by IL-4, IL-10, TGF- $\beta$ , and various glucocorticoids. It facilitates amplification of antigen presentation, the production of reactive oxygen species (ROS), and the induction of antiviral and antibacterial responses by binding to the interferon  $\gamma$  receptor extracellular domain IFNGR1 (Item No. 32006) to induce signal transduction and gene transcription.<sup>1,3</sup> In addition to its role in infectious disease, IFN- $\gamma$  enhances the antigenicity of tumor cells, making them more susceptible to IFN- $\gamma$ -stimulated immune effector cells.<sup>4</sup> It induces tumor cell apoptosis and necroptosis, and inhibits tumor angiogenesis *in vitro* and *in vivo*. However, IFN- $\gamma$ -induced removal of highly antigenic tumor cells can leave behind a population with reduced immunogenicity that can evade immune detection and enhance metastasis. Knockdown of *Irfng* improves insulin resistance in a mouse model of high-fat diet-induced obesity and increases susceptibility to various pathogens in mice.<sup>1,5</sup> Cayman's IFN- $\gamma$  (human, recombinant) protein can be used for cell-based assay applications. The protein consists of 143 amino acids, has a calculated molecular weight of 16.7 kDa, and a predicted N-terminus of Gln24 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, Cayman's IFN- $\gamma$  (human, recombinant) migrates as two bands at 21 and 25 kDa due to apparent differential glycosylation.

## References

1. Schroder, K., Hertzog, P.J., Ravasi, T., *et al.* Interferon- $\gamma$ : An overview of signals, mechanisms and functions. *J. Leukoc. Biol.* **75**(2), 163-189 (2004).
2. Schoenborn, J.R. and Wilson, C.B. Regulation of interferon- $\gamma$  during innate and adaptive immune responses. *Adv. Immunol.* **96**, 41-101 (2007).
3. Meng, Z.J., Wang, C., Meng, L.T., *et al.* Sodium tanshinone IIA sulfonate attenuates cardiac dysfunction and improves survival of rats with cecal ligation and puncture-induced sepsis. *Chin. J. Nat. Med.* **16**(11), 846-855 (2018).
4. Zaidi, M.R. The interferon-gamma paradox in cancer. *J. Interferon. Cytokine Res.* **39**(1), 30-38 (2019).
5. Ivashkiv, L.B. IFN $\gamma$ : Signalling, epigenetics and roles in immunity, metabolism disease and cancer immunotherapy. *Nat. Rev. Immunol.* **18**(9), 545-558 (2018).

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