

Human Interferon- γ (hIFN- γ)

SC 100 μ g
(With Carrier)

SF 100 μ g
(Carrier Free)

Multi-milligram quantities available

rev. 11/13/09



Cell Signaling
TECHNOLOGY®

Orders 877-616-CELL (2355)
orders@cellsignaling.com

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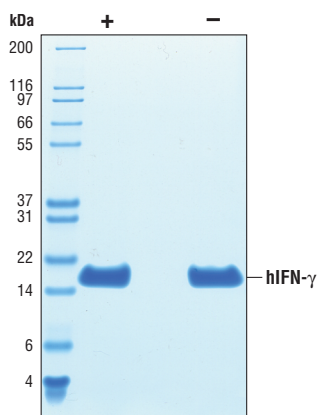
This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Source: Recombinant human IFN- γ (hIFN- γ) Gln24-Gln166 (Accession # NM_000619) was produced in *E. coli* at Cell Signaling Technology.

Molecular Characterization: Recombinant hIFN- γ has a Met on the amino terminus and has a calculated MW of 16,907. DTT-reduced and non-reduced protein migrate as 17 kDa polypeptides. The expected amino-terminal MQDPY of recombinant hIFN- γ was verified by amino acid sequencing.

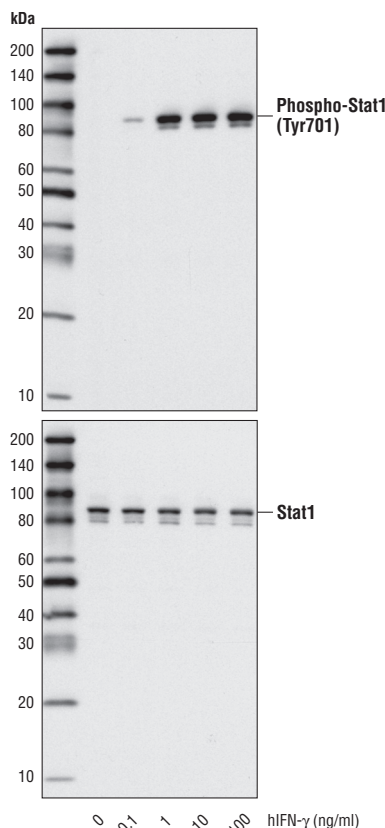
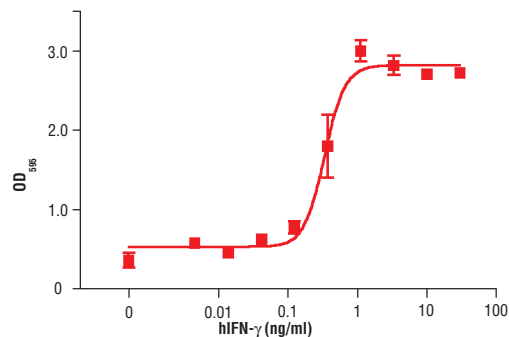
Endotoxin: Less than 0.01 ng endotoxin/1 μ g hIFN- γ .

Purity: >96% as determined by SDS-PAGE of 6 μ g reduced (+) and non-reduced (-) recombinant hIFN- γ . All lots are greater than 96% pure.



The purity of recombinant hIFN- γ was determined by SDS-PAGE of 6 μ g reduced (+) and non-reduced (-) recombinant hIFN- γ and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of hIFN- γ was determined in a virus protection assay. The ED₅₀ of each lot is between 0.30-1.2 ng/ml.



Western blot analysis of extracts from HeLa cells, untreated or treated with hIFN- γ for 20 minutes, using Phospho-Stat1 (Tyr701) Antibody #9171 (upper) and Stat1 Antibody #9172 (lower).

Formulation: With carrier: A 0.22 μ m filtered solution of 0.33 mg/ml hIFN- γ in PBS, pH 7.2 containing 20 μ g BSA per 1 μ g hIFN- γ .

Carrier free: A 0.22 μ m filtered solution of 0.33 mg/ml hIFN- γ in PBS, pH 7.2.

Storage: Stable at 4°C for 1 year after receipt. *Maintain sterility. Do not store frozen.*

Applications: Optimal concentration for the desired application should be determined by the user.

Background: IFN- γ plays key roles in both the innate and adaptive immune response. IFN- γ activates the cytotoxic activity of innate immune cells such as macrophages and NK cells (1,2). IFN- γ production by NK cells and antigen-presenting cells (APCs) promotes the cell mediated adaptive immunity by inducing IFN- γ production by T lymphocytes, increased class I and class II MHC expression, and enhancing peptide antigen presentation (1). The anti-viral activity of IFN- γ is due to its induction of PKR and other regulatory proteins. Binding of IFN- γ to the IFNGR1/IFNGR2 complex promotes dimerization of the receptor complexes to form (IFNGR1/IFNGR2)₂-IFN- γ dimer. Binding induces a conformational change in receptor intracellular domains and signaling involves Jak1, Jak2 and Stat1 (3). The critical role of IFN- γ in amplification of immune surveillance and function is supported by increased susceptibility to pathogen infection by IFN- γ or IFNGR knockout mice and in humans with inactivating mutations in IFNGR1 or IFNGR2. IFN- γ also appears to have a role in atherosclerosis (4).

Background References:

- (1) Schroder, K. et al. (2004) *J Leukoc Biol* 75, 163–89.
- (2) Martinez, F.O. et al. (2009) *Annu Rev Immunol* 27, 451–83.
- (3) Kotenko, S.V. et al. (1995) *J Biol Chem* 270, 20915–21.
- (4) McLaren, J.E. and Ramji, D.P. (2009) *Cytokine Growth Factor Rev* 20, 125–35.

◀ The bioactivity of recombinant hIFN- γ was determined in a virus protection assay. HeLa cells were pretreated with increasing concentrations of hIFN- γ for 24 hours. Cells were then inoculated with encephalomyocarditis virus (EMCV) and incubated for an additional 48 hours. Surviving cells were then fixed and stained with crystal violet and the OD₅₉₅ was determined.

Material Safety Data Sheet (MSDS) for Human Interferon- γ (hIFN- γ)



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I. Identification:

Product name: Human Interferon- γ (hIFN- γ)

Product Catalog: 8901

CAS#: 82115-62-6

Manufacturer Supplier: Cell Signaling Technology
3 Trask Lane
Danvers, MA 01923 USA
978-867-2300 TEL
978-867-2400 FAX
978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is a mixture of substances. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous.

Substance Name: Human Interferon- γ (hIFN- γ)

| Ingredients: | Carrier-Free | With Carrier | CAS# |
|---|--------------|--------------|------------|
| Human Interferon- γ (hIFN- γ) | 0.03% | 0.03% | 82115-62-6 |
| Bovine serum albumin | 0% | 0.67% | 9048-46-8 |
| Phosphate Buffer Saline (non-hazardous solution) | 99% | 99% | N/A |

III. Hazard Identification:

This product is not for use in humans. It is intended for research purposes only. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

EMERGENCY OVERVIEW:

| | | | |
|------|-----------|-----------------|---------------|
| HMIS | Health: 0 | Flammability: 0 | Reactivity: 0 |
| NFPA | Health: 0 | Flammability: 0 | Reactivity: 0 |

IV. First Aid Measures:

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If swallowed, wash out mouth with water provided person is conscious. Get medical attention.

Skin exposure: In case of contact, immediately wash skin with soap and water for at least 15 minutes. Remove contaminated clothing. Wash clothing before reuse.

Eye exposure: In case of contact with eyes, immediately flush eyes with water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Data not available.

Autoignition Temperature: Data not available.

Explosion: Data not available.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes. May emit toxic fumes under fire conditions.

VI. Accidental Release Measures: Wear appropriate personal protective equipment. Absorb liquid with an absorbant material. Transfer to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store in tightly closed container at 4°C. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local and/or general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear protective safety glasses or chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

IX. Physical And Chemical Properties

| | |
|------------------------------------|--------------------|
| Appearance: | clear liquid |
| pH: | data not available |
| Melting Point: | data not available |
| Boiling Point: | data not available |
| Freezing Point: | data not available |
| Volatile Organic Compounds: | data not available |
| Solubility in water: | soluble |

X. Stability and Reactivity:

Stability: Stable under normal conditions.

Conditions/materials to avoid: Data not available

Hazardous Decomposition: Data not available.

XI. Toxicological Information:

Acute Effects: Data not available

Chronic Effects: Data not available

Potential Health Effects: Not established.

Inhalation: May be harmful, may be irritating to mucous membranes and upper respiratory tract.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed.

XII. Ecological Information:

No data available.

XIII. Disposal Considerations: Dispose of in accordance with federal, state, local environmental regulations.

XIV. Transport Information:

DOT: This substance is considered Non-Hazardous for transport.

IATA: This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

EU Regulations/Classifications/Labeling Information: None.

US Regulatory Information:

SARA Listed: No.

Canada (WHMIS): DSL No, NDSL No.

XVI. Other Information:

This compound is sold for research use only. It is not for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.