

For life science research only.  
Not for use in diagnostic procedures.



# Interferon- $\gamma$ , human (hIFN- $\gamma$ ) recombinant (*E. coli*)

 **Version: 19**

Content Version: April 2021

**Cat. No. 11 040 596 001**      100,000 U  
5  $\mu$ g, 1 ml

**Store product at  $-15$  to  $-25^{\circ}\text{C}$ .**

<b>1.</b>	<b>General Information .....</b>	<b>3</b>
1.1.	Contents .....	3
1.2.	Storage and Stability .....	3
	Storage Conditions (Product) .....	3
1.3.	Application .....	3
<b>2.</b>	<b>How to Use this Product .....</b>	<b>4</b>
2.1.	Before you Begin .....	4
	General Considerations .....	4
	Primary structure .....	4
	Working Solution.....	4
2.2.	Parameters .....	4
	Biological Activity .....	4
	Molecular Weight .....	4
	Purity.....	4
	Specific Activity .....	4
	Specificity .....	4
	Unit Definition.....	4
<b>3.</b>	<b>Additional Information on this Product .....</b>	<b>5</b>
3.1.	Test Principle .....	5
	How this product works.....	5
	Preparation.....	5
3.2.	Quality Control.....	5
<b>4.</b>	<b>Supplementary Information .....</b>	<b>6</b>
4.1.	Conventions.....	6
4.2.	Changes to previous version .....	6
4.3.	Trademarks.....	7
4.4.	License Disclaimer .....	7
4.5.	Regulatory Disclaimer.....	7
4.6.	Safety Data Sheet.....	7
4.7.	Contact and Support.....	7

# 1. General Information

## 1.1. Contents

Vial / Bottle	Cap	Label	Function / Description	Content
1	red	Interferon- $\gamma$ , human (hIFN- $\gamma$ )	<ul style="list-style-type: none"> <li>Solution, sterile-filtered through 0.2 <math>\mu</math>m pore size membrane.</li> <li>100,000 U/ml (5 <math>\mu</math>g/ml) in 0.1 M PBS (phosphate buffer saline) (pH 7.0), 2.5% sucrose (w/v), and 2.5% HSA (human serum albumin) (w/v).</li> </ul>	1 bottle, 1 ml

## 1.2. Storage and Stability

### Storage Conditions (Product)

The product is shipped on dry ice.

When stored at  $-15$  to  $-25^{\circ}\text{C}$ , the product is stable through the expiration date printed on the label.

Vial / Bottle	Cap	Label	Storage
1	red	Interferon- $\gamma$ , human (hIFN- $\gamma$ )	Store in aliquots at $-15$ to $-25^{\circ}\text{C}$ . <b>⚠️ Avoid repeated freezing and thawing.</b>

## 1.3. Application

Human Interferon- $\gamma$  (hIFN- $\gamma$ ) can be used to investigate IFN- $\gamma$  activities in human cell systems.

## 2. How to Use this Product

### 2.1. Before you Begin

#### General Considerations

##### Primary structure

The primary structure of recombinant human IFN- $\gamma$  (143 amino acids) is identical to that of natural human IFN- $\gamma$  (146 amino acids), however, recombinant IFN- $\gamma$  has three amino acids less and is not glycosylated.

**i** *Glycosylation is not essential for biological activity.*

##### Working Solution

Dilute the concentrated IFN- $\gamma$  solution (100,000 U/ml) with PBS or culture medium containing 1 mg/ml (0.1%) BSA or HSA (human serum albumin), or 1 to 10% serum.

### 2.2. Parameters

#### Biological Activity

The biological activity of this product may vary in different *in vitro* applications. Determine the optimal concentration range for specific applications.

#### Molecular Weight

16,700 Da

#### Purity

≥95% pure as determined by SDS-PAGE.

Endotoxin level: ≤10 EU/ml (LAL).

**i** *1 EU corresponds to 0.1 ng.*

#### Specific Activity

≥20 MU/mg

(hIFN- $\gamma$ , NIH, reference standard, Gg 23-901-530), at least the same specific activity ( $EC_{50}$ ) compared to the indicated standard is guaranteed.

#### Specificity

Human IFN- $\gamma$  is effective on human cells, but not on mouse or rat cells.

#### Unit Definition

The amount of hIFN- $\gamma$  that is required to produce equivalent antiviral activity to that expressed by 1 unit of the NIH IFN- $\gamma$  reference standard (Gg 23-901-530) (WISH cells-EMC virus/cytopathic effect) (1 unit equals ≤0.05 ng/ml).

## 3. Additional Information on this Product

### 3.1. Test Principle

#### How this product works

IFN- $\gamma$  is produced by T lymphocytes stimulated by antigen or by T-cell mitogens. Under denaturing conditions, recombinant human IFN- $\gamma$  has a molecular weight of 17,100 Da. Under nondenaturing conditions, the molecular weight values range from 32,000 to 73,000 Da indicating that recombinant human IFN- $\gamma$  exists as a dimer or higher oligomers. A broad range of biological activities has been attributed to IFN- $\gamma$ , such as the establishment of the antiviral state, immunoregulatory functions, and antiproliferative effects.

IFNs are defined solely in terms of their antiviral activity, however, IFN- $\gamma$  can also inhibit cell growth. The anti-proliferative effects of IFN- $\gamma$  are superior to those of either IFN- $\alpha$  or IFN- $\beta$ . Growth inhibition is dependent on cell type, dose, and length of exposure.

One of IFN- $\gamma$ 's primary functions is as an immunoregulatory agent:

- IFN- $\gamma$  induces MHC antigens on many cells, Fc-receptors on monocytes and macrophages, and IL-2 receptors on T cells.
- Enhances activity of macrophages, polymorphonuclear leukocytes, T lymphocytes, and NK-cells (MAF).
- Involved in the regulation of B cells.

#### Preparation

Recombinant human Interferon- $\gamma$  (hIFN- $\gamma$ ), is produced in *E. coli* and purified by standard chromatographic techniques.

### 3.2. Quality Control









The raw material used for this preparation was tested for HBs antigen and for the presence of antibodies to HIV-1, HIV-2, and HCV and found to be negative.

For lot-specific certificates of analysis, see section **Contact and Support**.

## 4. Supplementary Information

### 4.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
 <i>Information Note: Additional information about the current topic or procedure.</i>	
 <b>Important Note: Information critical to the success of the current procedure or use of the product.</b>	
   etc.	Stages in a process that usually occur in the order listed.
   etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

### 4.2. Changes to previous version

Layout changes.

Editorial changes.

### 4.3. Trademarks

All product names and trademarks are the property of their respective owners.

### 4.4. License Disclaimer

For patent license limitations for individual products please refer to:

**List of biochemical reagent products.**

### 4.5. Regulatory Disclaimer

For life science research only. Not for use in diagnostic procedures.

### 4.6. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

### 4.7. Contact and Support

To ask questions, solve problems, suggest enhancements or report new applications, please visit our **Online Technical Support Site.**

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed.

