

## Technical Data Sheet

Recombinant Human IFN- $\gamma$ 

## Product Information

Material Number:	554617
Size:	50 $\mu$ g
Concentration:	500 $\mu$ g/ml
Reactivity:	QC Testing: Human
Storage Buffer:	Frozen aqueous buffered solution containing BSA.

## Description

Interferon- $\gamma$  (IFN- $\gamma$ ) is a potent multifunctional cytokine which is secreted by activated NK cells and CD4+TCR $\alpha$  $\beta$ +, CD8+TCR $\alpha$  $\beta$ +, and TCR $\gamma$  $\delta$ + T cells. IFN- $\gamma$  exerts its biological effects through specific binding to a single class of high affinity receptors. In addition to its antiviral effects, IFN- $\gamma$  can upregulate a number of lymphoid cell functions including the antimicrobial and antitumor responses of macrophages, NK cells, and neutrophils. In addition, IFN- $\gamma$  can exert strong regulatory influences on the proliferation, differentiation, and effector responses of B cell and T cell subsets. These influences can involve IFN- $\gamma$ 's capacity to boost MHC class I and II expression by antigen-presenting cells as well as to direct effects on B cells and T cells themselves. Human IFN- $\gamma$  is a 14 - 18 kD multiple glycosylated protein containing 143 amino acid residues. Recombinant human IFN- $\gamma$  (Cat. No. 554617) is supplied as a frozen liquid comprised of 0.22  $\mu$ m sterile-filtered aqueous buffered solution containing bovine serum albumin, with no preservatives. Human IFN- $\gamma$  is  $\geq$  95% pure as determined by SDS-PAGE and an absorbance assay based on the Beers-Lambert law. The endotoxin level is  $\leq$  0.1 ng/ $\mu$ g of human IFN- $\gamma$ , as measured in a chromogenic LAL assay.

## Preparation and Storage

Store product at -80°C prior to use or for long term storage of stock solutions.

Rapidly thaw and quick-spin product prior to use.

Avoid multiple freeze-thaws of product.

This preparation contains no preservatives, thus it should be handled under aseptic conditions.

## Application Notes

## Application

ELISA Standard	Routinely Tested
Bioassay	Tested During Development

## Recommended Assay Procedure:

Upon initial thawing, recombinant human IFN- $\gamma$  (Cat. No. 554617) should be aliquoted into polypropylene microtubes and frozen at -80°C for future use. Alternatively, the product can be diluted in sterile neutral buffer containing not less than 1 - 10 mg/mL carrier protein, such as human or bovine albumin, aliquoted and stored at -80°C. For *in vitro* biological assay use, carrier-protein concentrations of 1 - 2 mg/mL are recommended. For use as an ELISA standard carrier-protein concentrations of 5 - 10 mg/mL are recommended. Failure to add carrier protein or store at indicated temperatures may result in a loss of activity. The product should not be diluted to less than 25  $\mu$ g/mL for long term storage. Carrier proteins should be pre-screened for possible effects in each investigator's experimental system. Carrier proteins may have an undesired influence on experimental results due to toxicity, high endotoxin levels or possible blocking activity.

**ELISA Standard:** Recombinant human IFN- $\gamma$  (Cat. No. 554617) can be useful as a quantitative standard for measuring human IFN- $\gamma$  protein levels using sandwich ELISA with the purified NIB42 antibody (Cat. No. 551221) as a capture antibody and biotinylated 4S.B3 antibody (Cat. No. 554550) as the detection antibody. To obtain linear standard curves, investigators may want to consider using doubling dilutions of recombinant human IFN- $\gamma$  standard from 2000 - 15 pg/mL to be included in each ELISA plate. For measuring human IFN- $\gamma$  in serum or plasma, investigators are highly encouraged to use the BD OptEIA™ Human IFN- $\gamma$  ELISA Set (Cat. No. 555142) or BD OptEIA™ Human IFN- $\gamma$  ELISA Kit II (Cat. No. 550612).

**Bioassay:** Investigators are advised that the Bioassay application is not routinely tested for this material and are highly encouraged to both titrate this material and include appropriate controls in relevant experiments. An activity range of 0.1 - 2.0 x 10<sup>8</sup> units/mg, encompassing an ED50= 0.05 - 1.0 ng/mL, has previously reported using A549 as indicator cells in an anti-viral bioassay, with a unit defined as the amount of material needed to stimulate a half-maximal response at cytokine saturation.

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## Suggested Companion Products

<u>Catalog Number</u>	<u>Name</u>	<u>Size</u>	<u>Clone</u>
551221	Purified Mouse Anti-Human IFN- $\gamma$	1.0 mg	NIB42
554550	Biotin Mouse Anti-Human IFN- $\gamma$	0.5 mg	4S.B3
555142	Human IFN- $\gamma$ ELISA Set	20 plates	(none)
550612	Human IFN- $\gamma$ ELISA Kit II	2 plates	(none)
554616	Recombinant Human IFN- $\gamma$	25 $\mu$ g	(none)

### Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
3. Please refer to [www.bdbiosciences.com/pharming/en/protocols](http://www.bdbiosciences.com/pharming/en/protocols) for technical protocols.

### References

Farrar MA, Schreiber RD. The molecular cell biology of interferon-gamma and its receptor. *Annu Rev Immunol.* 1993; 11:571-611. (Biology)  
Green JA, Yeh TJ, Overall JC. Rapid, quantitative, semiautomated assay for virus-induced and immune human interferons. *J Clin Microbiol.* 1980; 12(3):433-438. (Biology)  
Prussin C, Metcalfe DD. Detection of intracytoplasmic cytokine using flow cytometry and directly conjugated anti-cytokine antibodies. *J Immunol Methods.* 1995; 188(1):117-128. (Biology)  
Vogel S, Friedman R, Hogan M. Measurement of antiviral activity induced by interferons a, b, and g.. In: Coligan JE, Kruisbeek AM, Margulies DH, Shevach EM, Strober W, ed. *Current Protocols in Immunology.* New York: John Wiley & Sons; 2007:6.9.1-6.9.15. (Biology)

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