Miltenyi Biotec

Human IFN-γ1b
research grade

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1. Description

Products

Human IFN-γ1b, research grade.

Recombinant human interferon γ1b.

Content in µg	Order no.
10	130-096-872
25	130-096-873

Biological activity

The ED_{50} is ≤1 ng/mL corresponding to an activity of ≥1×10^6 IU/mg.

▲ **Note:** The ED_{50} was determined by growth inhibition assays using human HT-29 cells.[1] The inhibition assay was calibrated with the WHO International Standard for human IFN-γ (Gxg 01-902-535, NR-3086) provided by BEI Resources, National Institute of Allergy and Infectious Diseases (NIAID), NIH: Human Recombinant Gamma interferon.

Primary structure

Two identical, non-glycosylated polypeptide chains (139 amino acid residues). Sequence identical with therapeutic IFN-γ1b (Imukin®).

Molecular mass

16.3 kDa (monomer).

Source

Produced in *E. coli*.

Product format

Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer

Mannitol and trehalose.

Purity

>97% as determined by SDS-PAGE analysis.

Endotoxin level

Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage

Lyophilized Human IFN-γ1b, research grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.

Reconstitution

It is recommended to reconstitute lyophilized Human IFN-γ1b, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

1.1 Background information

IFN-γ, the only type II interferon, possesses potent anti-viral activity and immunoregulatory properties. It is structurally unrelated to the type I interferons and binds to a different receptor expressed by most immune cells. IFN-γ is produced predominantly by NK cells and T cells. IFN-γ enhances NK cell and macrophage activity and regulates B cell functions, like immunglobulin production and class switching. In addition, IFN-γ orchestrates leukocyte attraction and directs growth, maturation, and differentiation of many cell types. The activity of human IFN-γ is species-specific.

1.2 Applications

Human IFN-γ1b can be used for a variety of applications, including:

- Stimulation of monocytes, macrophages, and microglia.
- *In vitro* maturation of Mo-DCs.
- Apoptosis and cell growth inhibition assays.
- Adhesion and migration assays.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

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3. Fan, X.-Y. *et al.* (2017) All-trans retinoic acid enhances cytotoxicity of CIK cells against human lung adenocarcinoma by upregulating MICA and IL-2 secretion. Sci Rep 7 (1): 16481.
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8. Graciotti, M. *et al.* (2020) Deciphering the Mechanisms of Improved Immunogenicity of Hypochlorous Acid-Treated Antigens in Anti-Cancer Dendritic Cell-Based Vaccines. Vaccines (Basel) 8 (2): 271.

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