# Recombinant Human Universal Type I IFN

Catalog Number: 11020-IF

## DESCRIPTION

| | |
|---|---|
| **Source** | Human embryonic kidney cell, HEK293-derived human IFN-alpha protein |

| Human IFNA-2A (Cys24-Gln85) Accession # P01563.1 | Human IFNA-1B (Ile87-Glu189) Accession # CAA23799.1 |
|---|---|
| N-terminus | C-terminus |

| | |
|---|---|
| **N-terminal Sequence Analysis** | Cys24 |
| **Predicted Molecular Mass** | 19 kDa |

## SPECIFICATIONS

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|---|---|
| **SDS-PAGE** | 16-22 kDa, under reducing conditions. |
| **Activity** | Measured in anti-viral assays using HeLa human cervical epithelial carcinoma cells infected with encephalomyocarditis (EMC) virus. Meager, A. (1987) in Lymphokines and Interferons, a Practical Approach. Clemens, M.J. *et al.* (eds): IRL Press. 129. The $ED_{50}$ for this effect is 6.00-60.0 pg/mL. |
| **Endotoxin Level** | <0.10 EU per 1 µg of the protein by the LAL method. |
| **Purity** | >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining. |
| **Formulation** | Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details. |

## PREPARATION AND STORAGE

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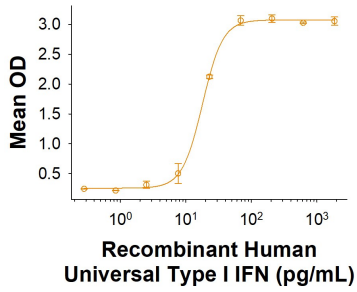
|---|---|
| **Reconstitution** | Reconstitute at 100 µg/mL in PBS. |
| **Shipping** | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>• 12 months from date of receipt, -20 to -70 °C as supplied.<br>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>• 3 months, -20 to -70 °C under sterile conditions after reconstitution. |

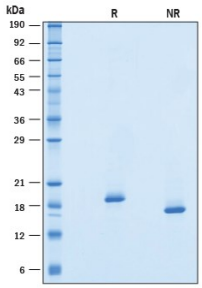
## DATA

**Bioactivity**




**Recombinant Human Universal Type I IFN Protein Bioactivity.** Recombinant Human Universal Type I IFN (Catalog # 11020-IF) demonstrates anti-viral activity in HeLa human cervical epithelial carcinoma cells infected with encephalomyocarditis (EMC) virus. The $ED_{50}$ for this effect is 6.00-60.0 pg/mL

**SDS-PAGE**




**Recombinant Human Universal Type I IFN Protein SDS-PAGE.** 2 µg/lane of Recombinant Human Universal Type I IFN Protein (Catalog # 11020-IF) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 16-22 kDa.



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## BACKGROUND

Interferons (IFN) are a family of cytokines with potent antiviral, antiproliferative and immunomodulatory properties, classified based on their binding specificity to cell surface receptors (1). Human IFNA2 was originally cloned in the early '80s and now more than a dozen closely related IFN alpha subtypes have been identified in both the human and mouse genome, each sharing about 80% amino acid (aa) sequence homology (2-4). Structurally, type I IFNs belong to the class of five helical-bundle cytokines, with the IFNA subtypes containing 2 conserved disulfide bonds (5). The extracellular domain (ECD) of mature human universal Type I IFN is a hybrid of the N-terminal residues of IFNA-2A and C-terminal residues of IFNA-1B. The type I IFNs bind to the interferon alpha receptor (IFNAR), which consists of two subunits: IFNAR1 (alpha -subunit) and IFNAR2 (beta -subunit) (6, 7). Individual IFNA subtypes are known to display unique efficacies to viral protection, and IFNA1 exhibits low potency, determined by both antiviral and antiproliferative activities (8). Conversely, hybrid IFNA molecules, similar to universal Type I IFN, exhibit high specific activity across multiple species (9, 10). These molecules were developed to help study the biology of the IFN system in various animal species (11). Human IFNA1 was the first IFNA to be purified and has been tested as a treatment for various diseases (12-14).

**References:**

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