

## Certificate of Analysis

### Human Interferon Alpha Sampler Set

**Catalog No:** 11002-1

**Lot No:** 7551

**Size:**  $\geq 1 \times 10^5$  units/vial

**Introduction:** While human interferon alpha A (Hu-IFN- $\alpha$ A) has worked reasonably well in most applications, there are twelve identified individual species in the human interferon- $\alpha$  family, each with vastly different properties. Some have proven to be ten and twenty times more effective than Hu-IFN- $\alpha$ A in protecting a cell against specific viruses (see graph). Nonetheless, ninety-nine percent of the human interferon- $\alpha$  sold for research is still IFN- $\alpha$ A (IFN- $\alpha$ 2a) or the closely related IFN- $\alpha$ 2 (IFN- $\alpha$ 2b).

The Human Interferon- $\alpha$  Sampler can help you find the right alpha interferon for your research. The Sampler contains  $\geq 100,000$  units of each of the species. By testing and selecting specific alpha interferons to meet your research needs, not only could you see improved effectiveness and reduce the amount of material required, but you could increase your understanding of how interferons function.

### Product Information

**Volume:** 0.1 ml

**Activity:** Refer to table for the activity (MDBK/VSV) of individual subtypes

**Specific Activity:** Refer to table for the specific activity (MDBK/VSV) of individual subtypes

**Buffer:** Phosphate buffered saline (PBS) containing 0.1% bovine serum albumin (BSA)

**Endotoxin:**  $< 1$  EU/ $\mu$ g

**Purity:**  $\geq 95\%$

**Purification Method:** Purified from *E. coli* by a combination of ion exchange, hydrophobic interaction and size exclusion chromatography

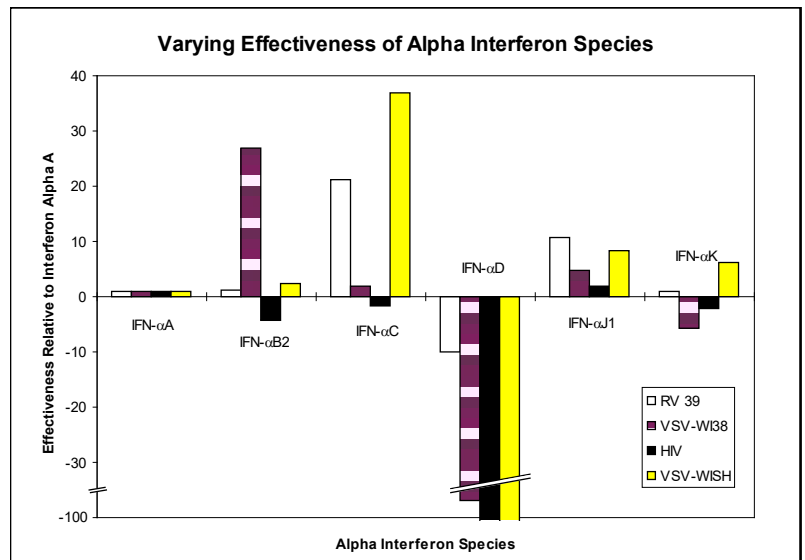
**Source:** cDNA obtained from human leukocyte mRNA expressed in *E. coli*

**Assay Used to Measure Bioactivity:** Interferon was titrated with the use of the cytopathic effect inhibition assay as listed

**Bovine (MDBK/VSV)** – performed as described [Rubinstein, *et al.* (1981) *J. Virol.* 37(2):755]. The  $EC_{50}$  for interferon in this assay is  $\sim 5$  U/ml. Lot Activity was derived from multiple determinations in the above assay.

**Human (A549/EMCV)** – performed as described [Budd, *et al.* (1985) *Canc. Chem. Pharm.* 12:39]. The  $EC_{50}$  for interferon in this assay is  $\sim 1$  U/ml.

The units are determined by use of a Human IFN Alpha A (Hu-IFN- $\alpha$ A [2a]) laboratory standard calibrated to the international reference standard for Human Interferon Alpha A (Hu-IFN- $\alpha$ A [2a]) provided by the National Institutes of Health [Meager, *et al.*



**Figure 1.** Varying Effectiveness of Alpha Interferon Species.  
 1. Sperber, S., *et al.* (1992) *J. Interferon Research* 12:363-368.  
 2. Sperber, S., *et al.* (1993) *Antiviral Research* 22:121-129.

(2001) *J. Immunol. Methods*. 257(1-2):17-33]. Please note that IFN assays vary between labs and assay systems [Meager, *et al.* (2001) *J. Immunol. Meth.* 257:17. Meager and Das (2005) *J. Immunol. Meth.* 306:1].

**References:** For more information on the various alleles of IFN alpha 2a, 2b, 4a, 4b, 1 and D.

1. Gewart, DR., *et al.* (1995) *J. Interferon Cytokine Res.* 15(5):403.
2. Hussain, M., *et al.* (1997) *J. Interferon Cytokine Res.* 17(9):559.
3. Hussain, M., *et al.* (2000) *J. Interferon Cytokine Res.* 20:763.

**Materials Supplied**

Part No.	Human Interferon Subtype Description	Component Lot No.	Accession Number	Gene	Molecular Weight (kDa)	Theoretical pI	Reference Catalog No.*
1	Alpha A (2a)	7451	V00549	IFNA2	19.2	5.99	11100
2	Alpha B2 (8)	7394	X03125	IFNA8	19.5	5.18	11115
3	Alpha C (10)	7435	X02961	IFNA10	19.4	5.7	11120
4	Alpha D (1 [Val(114)])	7289	V00538	IFNA1	19.4	5.18	11125
5	Alpha F (21)	6879	V00540	IFNA21	19.3	5.99	11130
6	Alpha G (5)	7470	X02956	IFNA5	19.5	5.46	11135
7	Alpha H2 (14)	7513	X02959	IFNA14	19.7	6.38	11145
8	Alpha I (17)	6836	V00532	IFNA17	19.3	5.46	11150
9	Alpha J1 (7)	7471	X02960	IFNA7	19.6	5.87	11160
10	Alpha K (6)	7436	X02958	IFNA6	19.7	6.43	11165
11	Alpha 4b (4)	7553	X02955	IFNA4	19.4	5.76	11180
12	Alpha WA (16)	7550	X02957	IFNA16	19.3	5.96	11190

Part No.	Human Interferon Subtype Description	Component Lot No.	Concentration (Activity) (MDBK/VSV) (U/ml)	Concentration (Activity) after 1x Freeze-Thaw cycle (MDBK/VSV) (U/ml)+	Activity on A549 (human lung epithelial cells)/EMCV (U/ml)	Specific Activity on MDBK/VSV (U/mg)
1	Alpha A (2a)	7451	5.23 x 10 <sup>7</sup>	5.82 x 10 <sup>7</sup>	6.59 x 10 <sup>7</sup>	2.85 x 10 <sup>8</sup>
2	Alpha B2 (8)	7394	5.56 x 10 <sup>6</sup>	6.26 x 10 <sup>6</sup>	1.39 x 10 <sup>7</sup>	3.97 x 10 <sup>8</sup>
3	Alpha C (10)	7435	1.39 x 10 <sup>6</sup>	1.06 x 10 <sup>6</sup>	3.10 x 10 <sup>6</sup>	1.51 x 10 <sup>8</sup>
4	Alpha D (1 [Val(114)])	7289	2.37 x 10 <sup>6</sup>	1.77 x 10 <sup>6</sup>	3.36 x 10 <sup>5</sup>	8.77 x 10 <sup>7</sup>
5	Alpha F (21)	6879	3.36 x 10 <sup>6</sup>	2.02 x 10 <sup>6</sup>	1.24 x 10 <sup>6</sup>	3.36 x 10 <sup>8</sup>
6	Alpha G (5)	7470	2.96 x 10 <sup>6</sup>	2.78 x 10 <sup>6</sup>	3.91 x 10 <sup>6</sup>	1.85 x 10 <sup>8</sup>
7	Alpha H2 (14)	7513	2.66 x 10 <sup>6</sup>	2.64 x 10 <sup>6</sup>	1.48 x 10 <sup>7</sup>	6.04 x 10 <sup>7</sup>
8	Alpha I (17)	6836	1.97 x 10 <sup>6</sup>	1.51 x 10 <sup>6</sup>	3.26 x 10 <sup>6</sup>	2.18 x 10 <sup>8</sup>
9	Alpha J1 (7)	7471	2.61 x 10 <sup>6</sup>	2.43 x 10 <sup>6</sup>	4.30 x 10 <sup>5</sup>	2.37 x 10 <sup>8</sup>
10	Alpha K (6)	7436	6.73 x 10 <sup>6</sup>	8.09 x 10 <sup>6</sup>	3.29 x 10 <sup>6</sup>	2.32 x 10 <sup>8</sup>
11	Alpha 4b (4)	7553	1.73 x 10 <sup>6</sup>	1.56 x 10 <sup>6</sup>	1.28 x 10 <sup>6</sup>	2.88 x 10 <sup>8</sup>
12	Alpha WA (16)	7550	7.31 x 10 <sup>6</sup>	6.54 x 10 <sup>6</sup>	1.47 x 10 <sup>6</sup>	5.37 x 10 <sup>7</sup>

\* The Reference Catalog Numbers are provided for ease of ordering the individual human alpha subtypes. Please use this information to order individual alpha subtypes. Additional background information on the different interferon alpha subtypes is available upon request.

+ See Storage Conditions/Comments.



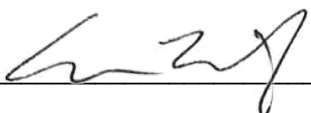
**Shipping Information**

**Shipping Conditions:** Dry Ice

**Physical State of Product During Shipping:** Frozen

**Storage Conditions/Comments:** After receipt, the product may be stored at -20°C for short-term use ( $\leq 6$  months). For long-term storage, we recommend storing the product at -70°C or below for retention of full activity. When thawing, the contents of the tube should be apportioned in separate tubes so that freezing and thawing is kept to a minimum. Refreezing should be done on dry ice or in a dry ice/alcohol bath. Further dilution of the product should be in buffers containing protein such as 0.1% bovine serum albumin (BSA) or tissue culture media with serum. Dilution of material below  $2 \times 10^5$  units/ml for freezing is not recommended. There may be losses in activities after one freeze-thaw cycle. One freeze-thaw cycle is equivalent to thawing an aliquot prepared from the material received. Refer to the table for activities on MDBK/VSV cells post one freeze-thaw cycle. Please note that IFN activities vary across labs and assay systems. For more information on protein handling, visit our Resource Library at [www.pbl assaysci.com](http://www.pbl assaysci.com).

**Authorization**

Released by: \_\_\_\_\_ 

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