The interferons (IFNs) represent proteins with antiviral activity secreted from cells in response to a variety of stimuli. All fractions that exhibit antiviral activity also exhibit anti-growth activity, stimulate cytotoxic activities of lymphocytes and macrophages, increase Natural Killer cell activity, and increase the expression of some tumor-associated antigens (1). A major effect of IFNs is their modulation of antigens of the major histocompatibility complex (MHC). All IFNs induce an increase in surface expression of class I MHC antigens. Expression of the Fc receptors is also stimulated by IFN. The interaction of IFNs with their receptors determines the biochemical events and their modulation of cellular functions (2).

The role of IFNα as a disease marker and marker for immunotherapeutic approaches has been demonstrated for a number of different indications and pathological situations. These include during the acute phase of a viral infection (3) and in the majority of patients suffering from inflammatory arthropathies and other autoimmune disorders (4). Serum IFN levels can also help to distinguish between children with non-specific abdominal pain and those with acute appendicitis (5). Intrapleurally administered interferon causes measurable serum concentrations that correlate with the degeneration of malignant cells in, for example, breast cancer (6).

Description
IFNα, Human, Biotrak™ Easy ELISA is based upon a format in which all of the main assay components are supplied lyophilized and preloaded on a 96-well microplate. Assays are performed through the simple addition of water to standard wells, as well as diluted samples to the sample wells. Because there are fewer steps, Easy ELISAs are easier to use than conventional ELISAs and reduce pipetting to a minimum.

- No standard curve titration
- No predilution of reagents
- Single wash step
- Less than half the working steps of a standard format ELISA
- Approximately 50% saving on consumables

Components
1 × 96-well microplate coated with Mab (murine) to (h)IFNα and HRP-conjugate (anti-IFNα Mab [murine]), lyophilized
2 × IFNα standard curve
1 bottle (25 ml) 20× wash buffer concentrate (PBS with 1% Tween 20)
1 vial (15 ml) substrate solution (tetramethyl-benzidine)
1 vial (5 ml) 20× assay buffer concentrate
1 vial (15 ml) stop solution (1 M phosphoric acid)
1 adhesive plate cover

Other materials required
Multichannel wash bottle or automatic wash system
Microwell strip reader capable of reading at 450 nm
Statistical calculator with program to perform linear regression analysis

Assay specifications
- Dynamic range: 8–500 pg/ml
- Sensitivity: 5 pg/ml
- Sample volume: 20 µl
- Protocol: 190 min
- Suitable for cell culture supematants, serum, plasma, and amniotic fluid samples

Typical standard curve
A typical standard curve for the IFNα, Human, Biotrak Easy ELISA is shown in Figure 1. The (h)IFNα was diluted in serial two-fold steps in assay buffer, ♦ represents the mean of three parallel titrations.

![Typical standard curve](image-url)
Comparison with conventional ELISA

Results
Serum samples were diluted and the concentration of IFNα determined using IFNα Human, Biotrak Easy ELISA and Medsystem’s standard format (h)IFNα ELISA. The results were then plotted and compared (Fig 2). The data show that similar results were obtained.

Fig 2. Sample measurements of (h)IFNα using IFNα Human, Biotrak Easy ELISA (■) and a standard format (h)IFNα ELISA (●).

Performance characteristics
The performance of IFNα, Human, Biotrak Easy ELISA compares well with standard format ELISAs (Table 1).

Table 1. Summary of IFNα, Human, Biotrak Easy ELISA performance characteristics.

<table>
<thead>
<tr>
<th>Easy ELISA</th>
<th>Standard ELISA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of tests</td>
<td>96</td>
</tr>
<tr>
<td>Standard range (pg/ml)</td>
<td>8–500</td>
</tr>
<tr>
<td>Sensitivity (pg/ml)</td>
<td>5</td>
</tr>
<tr>
<td>Intra-assay precision (% C.V.)</td>
<td>6.0</td>
</tr>
<tr>
<td>Inter-assay precision (% C.V.)</td>
<td>7.4</td>
</tr>
<tr>
<td>Spike recovery (%)</td>
<td>85</td>
</tr>
<tr>
<td>Sample volume (µl)</td>
<td>20</td>
</tr>
<tr>
<td>Incubation time (min)</td>
<td>130</td>
</tr>
<tr>
<td>Bench time (min)</td>
<td>15</td>
</tr>
</tbody>
</table>

Handling
The whole kit can be stored at -20 °C. Alternatively, the ELISA plate can be removed and stored at -20 °C. The remaining kit reagents can then be stored between 2 and 8 °C.

Expiry
All components are stable for at least 4 weeks when stored under the recommended conditions. Expiry of the kit and reagents is stated on labels.

References

Ordering information
IFNα Human, Biotrak Easy ELISA 96 Wells RPN960

Related products
IFNγ Human, Biotrak Easy ELISA 96 Wells RPN961
IL-10 Human, Biotrak Easy ELISA 96 Wells RPN962
IL-10 Mouse, Biotrak Easy ELISA 96 Wells RPN963
MCP-1 Human, Biotrak Easy ELISA 96 Wells RPN964
IL-2 Human, Biotrak Easy ELISA 96 Wells RPN965
IL-2 Mouse, Biotrak Easy ELISA 96 Wells RPN966
TNFα Human, Biotrak Easy ELISA 96 Wells RPN967
IL-6 Human, Biotrak Easy ELISA 96 Wells RPN968
IL-8/β-NAP-1 Human, Biotrak Easy ELISA 96 Wells RPN969
TGFβ1 Human, Biotrak Easy ELISA 96 Wells RPN970
IL-1β Human, Biotrak Easy ELISA 96 Wells RPN971
IL-13 Human, Biotrak Easy ELISA 96 Wells RPN972
TNFβ Human, Biotrak Easy ELISA 96 Wells RPN973

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