Recombinant Human IL-18

Code No.  B001-5   Quantity  25 µg   Form  Lyophilized

**BACKGROUND:** Interleukin 18 (IL-18) is an 18-kDa cytokine which identified as a costimulatory factor for production of interferon-γ (IFN-γ) in response to toxic shock and shares functional similarities with IL-12. IL-18 is synthesized as a precursor 24-kDa molecule without a signal peptide and must be cleaved to produce an active molecule. IL-1 converting enzyme (ICE, Caspase-1) cleaves pro-IL-18 at aspartic acid in the P1 position, producing the mature, bioactive peptide that is readily released from the cells. It is reported that IL-18 is produced from Kupffer cells, activated macrophages, keratinocytes, intestinal epithelial cells, osteoblasts, adrenal cortex cells and murine diencephalon. IFN-γ is produced by activated T or NK cells and plays critical roles in the defense against microbiral pathogens. IFN-γ activates macrophages and enhances NK activity and B cell maturation, proliferation and Ig secretion. IFN-γ also induces expression of MHC class I and II antigens and inhibits osteoclast activation. IL-18 acts on T helper type-1 (Th1) T cells and in combination with IL-12 strongly induces them to produce IFN-γ. Pleiotropic effects of IL-18 have also been reported, such as, enhancement production of IFN-γ and GM-CSF in peripheral blood mononuclear cells, production of Th1 cytokines, IL-2, GM-CSF and IFN-γ in T cells, enhancement of Fas ligand expression by Th1 cells.

**DESCRIPTION:** cDNA encoding the matured human IL-18 protein sequence (corresponding to 37-193 aa) was expressed in *E. coli.*

**PURITY:** Greater than 90% purity as confirmed on SDS-PAGE by Coomassie brilliant blue staining.

**MOLECULAR WEIGHT:** 18 kDa

**ENDOTOXIN LEVEL:** Less than 0.1 ng per 1 µg of recombinant human IL-18 protein, when measured by the LAL assay.

**FORMULATION:** 25 µg of lyophilized human IL-18

**RECONSTITUTION:** Reconstitute with 250 µL of ice-cold distilled water on ice. The concentration will be 25 µg of human IL-18 in 250 µL volume of PBS containing 0.1% BSA and 1% sucrose.

**INTENDED USE:** For Research Use Only. Not for use in diagnostic procedures.

**STORAGE:** This product is stable for 24 months from the date of manufacture when store at -20°C or below. After reconstitution, avoid repeated freezing and thawing. The IL-18 can be stored for 1 week at 4°C. For storage, prepare appropriate aliquots and freeze them at -80°C using low retention tube.

**ACTIVITY:** Induction of IFN-γ by KG-1 cell [human myelomonocyte; ATCC CCL246] in response to the recombinant human IL-18 was measured using human IFN-γ ELISA.

Reference information:

<table>
<thead>
<tr>
<th>IL-18 final conc. (ng/mL)</th>
<th>IFN-γ induction (IU/mL)</th>
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<tbody>
<tr>
<td>10</td>
<td>48.1</td>
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<tr>
<td>20</td>
<td>64.3</td>
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</tbody>
</table>

IFN-γ producing activity of the sample cells can be varied depends on cell conditions. Optimal concentration for each application should be determined by each laboratory.

**REFERENCES:**

2) Bradley, T., et al., *Cell* 175, 387-399.e17 (2018)

The reference information could be updated. For the current information, please visit our website at [https://ruo.mbl.co.jp/](https://ruo.mbl.co.jp/).

**IFN-γ PRODUCTION ASSAY:**

1) KG-1 cells were cultured at 3 x 10⁶ cells/mL for 24 hours at 37°C in 5% CO₂ incubator with RPMI 1640 containing 10% fetal calf serum.
2) After 24 hours of pre-culture, the cell concentration was adjusted to 1.5 x 10⁶ cells/mL and incubated for 24 hours at 37°C in 5% CO₂ incubator with RPMI 1640 containing 10% fetal calf serum in the presence of IL-18.
3) The culture supernatant was recovered and the amount of IFN-γ were measured by Human IFN-γ ELISA Kit.

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