



# ***Recombinant Human IL-18/IL-1F4***

Catalogue Number: REC104

## **Specifications and Use**

### **Source**

- A DNA sequence encoding mature human IL-18 (Tyr37 – Asp193; Accession NM\_001562) was expressed in *E.coli*.

### **Molecular Mass**

- 18 kDa, reducing condition

### **Purity**

- 90%, as determined by SDS-PAGE and visualized by silver stain.

### **Endotoxin Level**

- < 1.0 EU per 1 µg of the protein as determined by LAL method.

### **Activity**

- Induction of IFN- $\gamma$  by KG-1 cell [human myelomonocyte; ATCC CCL246] in response to the recombinant human IL-18 was measured using human IFN- $\gamma$  ELISA.
- The ED<sub>50</sub> for this effect is typically 40-50 ng/mL.

### **Formulation**

- Supplied as lyophilized powder.
- Reconstitute in PBS
- Centrifuge the vial before opening to prevent loss of the powder.

### **Storage**

- Samples are stable up to 1 year from date of receipt at -20°C.
- Upon thawing, this protein can be stored under sterile conditions at 2-8°C for two weeks or at -70°C in a manual defrost freezer for three months without detectable loss of activity.
- Avoid repeated freeze-thaw cycles. Samples are recommended to be aliquot in small volumes and frozen for multiple uses.

## **Background**

Interleukin 18 (IL-18) is an 18-kDa cytokine which identified as a costimulatory factor for production of interferon- $\gamma$  (IFN- $\gamma$ ) 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- $\gamma$  is produced by activated T or NK cells and plays critical roles in the defense against microbial pathogens. IFN- $\gamma$  activates macrophages and enhances NK activity and B cell maturation, proliferation and Ig secretion. IFN- $\gamma$  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- $\gamma$ . Pleiotropic effects of IL-18 have also been reported, such as, enhancement production of IFN- $\gamma$  and GM-CSF in peripheral blood mononuclear cells, production of Th1 cytokines, IL-2, GM-CSF and IFN- $\gamma$  in T cells, enhancement of Fas ligand expression by Th1 cells.

## **References**

1. Tao, D., *et al.*, *Cell Immunol.* **173**, 230-235 (1998)
2. Ushio, S., *et al.*, *J. Immunol.* **156**, 4274-4279 (1996)
3. Micallef, M., *et al.*, *Eur. J. Immunol.* **26**, 1647-1651 (1996)
4. Okamura, H., *et al.*, *Nature* **378**, 88-91 (1995)

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**82-2-457-0868**