

# Recombinant Human Interleukin 18

**Code No.****B001-5****Quantity****25 µg x 1 vial****Form****lyophilized**

**BACKGROUND:** Interleukin 18 (IL-18) is a 18 kDa novel 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, enhances NK activity and B cell maturation, proliferation and Ig secretion, induces MHC class I and II antigens, and inhibits osteoclast activation.

IL-18 acts on T helper 1-type T cells and in combination with IL-12 strongly induces them to produce IFN- $\gamma$ . Pleiotropic effects of IL-18 has also been reported, such as, enhancement production of IFN- $\gamma$  and GM-CSF in peripheral blood mononuclear cells, production of T helper type 1 cytokines, IL-2, GM-CSF and IFN- $\gamma$  in T cells, enhancement of Fas ligand expression by T helper type 1 (Th1) cells.

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

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

**MOLECULAR WEIGHT:** 18kDa

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

**SUPPLIED :** Lyophilized in PBS, 0.1% BSA and 1 % sucrose. Reconstitute in 100 µl of ice-cold distilled water on ice.

**STORAGE :** Lyophilized IL-18 is stable for 24 months from the date of manufacture when stored at -20°C or below. After reconstitution, avoid repeated freeze/thaw cycles. The IL-18 can be stored for 1 week at 4°C. For storage, prepare appropriate aliquots and freeze them at -80°C.

**ACTIVITY :** Induction of IFN- $\gamma$  by KG-1 cell (Human myelomonocyte; ATCC CCL246) in response to the Human IL-18 was measured by Human IFN- $\gamma$  ELISA. The activity of lot 030 is as follow;

IL-18 conc. (ng/mL)	IFN- $\gamma$ induction (IU/mL)*
40	58.0
80	200.7

**\*IFN- $\gamma$  producing activity of the sample cells can vary depending on cell conditions.**

**IFN- $\gamma$  PRODUCTION ASSAY :**

- 1) KG-1 cells were cultured at  $3 \times 10^5$  cells/mL for 4 days at 37°C in 5% CO<sub>2</sub> incubator with RPMI 1640 containing 10% fetal calf serum.
- 2) After four days of preculture, the cell concentration was adjusted to  $3 \times 10^6$  cells/mL and incubated for 24 hours at 37°C in 5% CO<sub>2</sub> incubator with RPMI 1640 containing 10% fetal calf serum in the presence of IL-18.
- 3) The culture supernatant were recovered and the amount of IFN- $\gamma$  were measured by Human IFN- $\gamma$  ELISA (code# IM1743: MBL).

**RESEARCH USE :** For research use only. Not for use in *in vitro* diagnostic procedures for clinical diagnosis.

**REFERENCE:**

- 1) Okamura H., et al. *Nature* **378**, 88-91 (1995)
- 2) Ushio S., et al. *J. Immunol.* **156**, 4274-4279 (1996)
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