

# Recombinant Human IL-18

<b>Code No.</b>	<b>Quantity</b>	<b>Form</b>
B001-5	25 µg	Lyophilized

**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.

**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/µg of recombinant human IL-18 protein, measured by the LAL assay.

**FORMULATION:** 25 µg in PBS containing 0.1% BSA and 1% sucrose. Reconstitute in 250 µL of ice-cold distilled water on ice.

## 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- $\gamma$  by KG-1 cell [human myelomonocyte; ATCC CCL246] in response to the recombinant human IL-18 was measured using human IFN- $\gamma$  ELISA.

## Reference information

The activity of lot 111 was as follow:

IL-18 final conc. (ng/mL)	IFN- $\gamma$ induction (IU/mL)
10	48.1
20	64.3

IFN- $\gamma$  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:

- 1) Reeves, E. P., *et al.*, *J. Immunol.* **184**, 1642-1652 (2010)
- 2) Guia, S., *et al.*, *Blood* **111**, 5008-5016 (2008)
- 3) Takahashi, H. K., *et al.*, *J. Leukoc. Biol.* **77**, 400-407 (2005)
- 4) Hata, H., *et al.*, *Int. Immunol.* **16**, 1733-1739 (2004)
- 5) Takahashi, H. K., *et al.*, *J. Immunol.* **168**, 4446-4454 (2002)
- 6) Tao, D., *et al.*, *Cell Immunol.* **173**, 230-235 (1998)
- 7) Ushio, S., *et al.*, *J. Immunol.* **156**, 4274-4279 (1996)
- 8) Micallef, M., *et al.*, *Eur. J. Immunol.* **26**, 1647-1651 (1996)
- 9) Okamura, H., *et al.*, *Nature* **378**, 88-91 (1995)

This product or B003-5 is used in the reference number 1)-5).

## IFN- $\gamma$ PRODUCTION ASSAY:

- 1) KG-1 cells were cultured at  $3 \times 10^5$  cells/mL for 24 hours at 37°C in 5% CO<sub>2</sub> incubator with RPMI 1640 containing 10% fetal calf serum.
- 2) After 24 hours of preculture, the cell concentration was adjusted to  $1.5 \times 10^6$  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 was recovered and the amount of IFN- $\gamma$  were measured by Human IFN- $\gamma$  ELISA Kit (MBL, code no. IM-1743).

**RELATED PRODUCTS:**

Recombinant Protein	code no.
Human IL-18 (25 µg)	B001-5
Human IL-18 (25 µg, without BSA)	B003-5
Mouse IL-18 (25 µg)	B002-5
Mouse IL-18 (25 µg, without BSA)	B004-5
Human IL-33 (10 µg)	B005-10
Mouse IL-33 (10 µg)	B006-10
Active Caspase-3 (Human, 0.1 mL)	E001
Active Caspase-7 (Human, 0.1 mL)	E002

Kit	code no.
Human IL-18 ELISA Kit	7620
Mouse IL-18 ELISA Kit	7625
Human ST2 ELISA Kit	7638
Human IL-33 Cytokine domain Detection Kit	7650
Ab-Match Assembly Mouse IL-33 Kit	5332
Ab-Macth Universal Kit	5310

Antibody	(clone)	(application)	code no.
anti-Human IL-18	(25-2G)	(WB, IHC*)	D043-3
anti-Human IL-18	(125-2H)	(IP, NT, ELISA)	D044-3
anti-Human IL-18	(159-12B)	(IP)	D045-3
anti-Human IL-18-Biotin	(159-12B)	(ELISA)	D045-6
anti-Human pro-IL-18	(43A11)	(WB)	M156-3
anti-Human IL-18 (PolyAb)		(WB, IHC)	PM014
anti-Mouse IL-18	(39-3F)	(WB)	D046-3
anti-Mouse IL-18	(74)	(IP)	D047-3
anti-Mouse IL-18	(93-10C)	(IP, NT)	D048-3
anti-Mouse IL-18-Biotin	(93-10C)	(ELISA)	D048-6
anti-Rat IL-18	(21A12)	(WB)	M157-3
anti-Rat IL-18	(91D8)	(IP)	M158-3
anti-Human IL-18R	(44G6)	(FCM)	M159-3
anti-Mouse IL-18R	(33A11)	(FCM)	M163-3
anti-Mouse IL-18R	(64G4)	(WB)	M166-3
anti-Human IL-18BP	(#36)	(WB)	D304-3
anti-Human IL-18BP	(#13)	(WB)	D305-3
anti-Mouse IL-18BP	(#36)	(WB)	D306-3
anti-Mouse IL-18BP	(#31)	(WB)	D307-3
anti-Human IL-33	(5H1)	(WB, IP)	M138-3
anti-Human IL-33 (PolyAb)		(WB, IHC)	PM033
anti-Mouse IL-33	(4G4)	(WB, IP)	M161-3
anti-Mouse IL-33	(1F11)	(WB, Neut.)	M187-3
anti-Mouse IL-33	(2C7)	(WB, Neut.)	M188-3
anti-Human ST2	(HB12)	(WB, IP, FCM, IHC)	D065-3
anti-Human ST2	(FB9)	(WB, IP, FCM, ELISA)	D066-3
anti-Human ST2	(2A5)	(WB, IP, FCM)	D067-3
anti-Human ST2-FITC	(2A5)	(FCM)	D067-4
anti-Human ST2-PE	(2A5)	(FCM)	D067-5

\* This monoclonal antibody can be used in the reference.  
Neut.: Neutralization