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

MBL
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Recombinant Human IL-18 (without BSA)

Code No.	Quantity	Form
B003-2	200 µg	Solution

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: 200 µg in 2 mL volume of PBS containing 1% sucrose.

INTENDED USE:
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STORAGE: This product is stable for 24 months from the date of manufacture when store at -80°C. Avoid repeated freezing and thawing. 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:

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

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:
1) Tanaka, Y., *et al., PLoS One.* **14**, e0212455 (2019)
2) Molgora, M., *et al., Nature* **551**, 110-114 (2017)
3) Reeves, E. P., *et al*., *J. Immunol.* **184**, 1642-1652 (2010)
4) Guia, S., *et al*., *Blood* **111**, 5008-5016 (2008)

As this product has been used in many researches, these references are a part of such reports.
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The descriptions of the following protocols are examples. Each user should determine the appropriate condition.

IFN-γ PRODUCTION ASSAY:
1) KG-1 cells were cultured at 3 x 10^5 cells/mL for 24 hours at 37°C in 5% CO_2 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 10^6 cells/mL and incubated for 24 hours at 37°C in 5% CO_2 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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