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1. Description

Products	Mouse IL-12, research grade. Recombinant mouse interleukin 12.								
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5	130-096-707								
25	130-096-708								
100	130-096-795								
Biological activity	The ED ₅₀ is ≤0.17 ng/mL corresponding to an activity of ≥6×10 ⁶ U/mg. ▲ Note: The ED ₅₀ is determined by inducing of IFN-γ secretion by activated mouse CD4 ⁺ splenic T cells. ¹								
Primary structure	Glycosylated single-chain polypeptide, p35 and p40 fused by a flexible linker region (534 amino acid residues).								
Molecular mass	60 kDa (calculated). 70 kDa (SDS-PAGE under reducing conditions).								
Source	Produced in HEK293 cells.								
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.								
Stabilizer	Mannitol and trehalose.								
Purity	>97% as determined by SDS-PAGE analysis.								
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.								
Storage	Lyophilized Mouse IL-12, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.								
Reconstitution	It is recommended to reconstitute lyophilized Mouse IL-12, research grade with deionized sterile-filtered water to a final concentration of 0.05–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.								

1.1 Background information

Interleukin 12 (IL-12) is a heterodimeric proinflammatory cytokine and a modulator of cell-mediated immunity, which is mainly produced by macrophages, dendritic cells, and B cells. IL-12 stimulates the production and secretion of several cytokines, in particular IFN-γ, by NK cells and T cells, induces proliferation, and enhances the cytotoxic activity within these cell populations. Another important activity of IL-12, acting together with IFN-γ and IL-2, is to drive T helper cell responses toward the T_H1 rather than the T_H2 phenotype. Moreover, IL-12 is also important in resistance to viral disease and has significant antitumor activity. It has been shown that single chain fusion proteins of naturally occurring heterodimeric cytokines such as IL-12 or IL-23 are bioactive *in vitro* and *in vivo*.^{2,3}

1.2 Applications

Mouse IL-12 can be used for a variety of applications, including:

- *In vitro* activation and proliferation of NK and T cells.
- *In vitro* differentiation of naive CD4⁺ T cells towards T_H1 cells.
- *In vitro* stimulation of cytotoxic activity of NK cells and T cells.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

1. Mattner, F. *et al.* (1993) The interleukin-12 subunit p40 specifically inhibits effects of the interleukin-12 heterodimer. *Eur. J. Immunol.* 23: 2202–2208.
2. Lieschke, G.J. *et al.* (1997) Bioactive murine and human interleukin-12 fusion proteins which retain antitumor activity *in vivo*. *Nat. Biotechnol.* 15: 35–40.
3. Miller, J.M. *et al.* (2010) Vesicular stomatitis virus modified with single chain IL-23 exhibits oncolytic activity against tumor cells *in vitro* and *in vivo*. *Int. J. Interferon Cytokine Mediator Res.* 2010: 63–72.

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