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1. Description

Products	Human IL-12 (CHO), research grade. Recombinant human interleukin 12.						
	<table border="1"> <thead> <tr> <th>Content in µg</th><th>Order no.</th></tr> </thead> <tbody> <tr> <td>10</td><td>130-129-723</td></tr> <tr> <td>25</td><td>130-129-722</td></tr> </tbody> </table>	Content in µg	Order no.	10	130-129-723	25	130-129-722
Content in µg	Order no.						
10	130-129-723						
25	130-129-722						
Biological activity	The ED ₅₀ is ≤0.67 ng/mL corresponding to an activity of ≥1.5×10 ⁶ U/mg. Note: The ED ₅₀ is determined by induction of IFN-γ secretion by PHA-activated T cells. ¹ The proliferation assay was calibrated with the reference reagent for human IL-12 (NIBSC code 95/544) provided by the WHO/National Institute for Biological Standards and Control.						
Primary structure	Glycosylated single-chain polypeptide, p40 and p35 fused by a flexible linker region (524 amino acid residues).						
Molecular mass	58.9 kDa (calculated) 80 kDa (SDS-PAGE under reducing conditions)						
Source	Produced in CHO cells.						
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.						
Stabilizer	Mannitol and trehalose.						
Purity	>95% 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 Human IL-12 (CHO), 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 Human IL-12 (CHO), research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 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*.

1.2 Applications

Human IL-12 (CHO) can be used for a variety of applications, including:

- *In vitro* differentiation of naive CD4⁺ T cells towards T_H1 cells.
- *In vitro* proliferation and 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. Wulff, H. *et al.* (2007) Cloning and characterization of an adenoviral vector for highly efficient and doxycycline-suppressible expression of bioactive human single-chain interleukin 12 in colon cancer. *BMC Biotechnol.* 7: 35.

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