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1. Description

Products

Human IL-7, research grade.

Recombinant human interleukin 7.

Content in µg	Order no.
10	130-093-937
25	130-095-367

Biological activity

The ED₅₀ is ≤0.05 ng/mL corresponding to an activity of ≥2×10⁷ U/mg.

Note: The ED₅₀ is determined by proliferation assay using mouse 2E8 cells according to Ishihara, K. *et al.*¹ The proliferation assay was calibrated with the reference standard for human IL-7 (NIBSC code 90/530) provided by the WHO/National Institute for Biological Standards and Control.

Primary structure

Single non-glycosylated polypeptide chain (152 amino acid residues).

Molecular mass

17.4 kDa.

Source

Produced in *E. coli*.

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-7, 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-7, 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

IL-7 is a member of the type I cytokine family. The primary sources of IL-7 are non-hematopoietic stromal cells in bone marrow, thymus, and lymphoid organs and tissues. It is a pleiotropic cytokine with central roles in modulating T cell development and peripheral T cell homeostasis. IL-7 can act both as a T cell growth factor as well as a critical anti-apoptotic survival factor for naive and memory T cells. IL-7 is related to IL-2 and signals through a heterodimeric receptor composed of the common cytokine signaling γ-chain and IL-7 receptor α-chain.

1.2 Applications

Human IL-7 can be used for a variety of applications, including:

- *In vitro* T cell expansion.
- *In vitro* T cell priming.
- *In vitro* differentiation of T cells and iNKT cells.
- Investigation of IL-7 mediated signaling pathways.

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

2. References

1. Ishihara, K. *et al.* (1991) Stromal-cell and cytokine-dependent lymphocyte clones which span the pre-B-to B-cell transition. *Dev. Immunol.* 1: 149–161.
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4. Engelmann S. *et al.* (2013) T cell-independent modulation of experimental autoimmune encephalomyelitis in ADAP-deficient mice. *J. Immunol.* 191 (10): 4950–4959.
5. Laurenti, E. *et al.* (2015) CDK6 levels regulate quiescence exit in human hematopoietic stem cells. *Cell Stem Cell* 16 (3): 302–313.
6. Velardi, E. *et al.* (2014) Sex steroid blockade enhances thymopoiesis by modulating Notch signaling. *J. Exp. Med.* 211 (12): 2341–2349.

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