Human IL-21
premium grade

10 µg	130-095-768
25 µg	130-095-769
100 µg	130-095-784

Contents

1. Description

Components	**Human IL-21, premium grade:** Purified recombinant human interleukin 21.
Sizes	10 µg, 25 µg, 100 µg.
Biological activity	The ED_{50} is ≤50 ng/mL* corresponding to a specific activity of ≥2×10^4 U/mg.
Primary structure	Single, non-glycosylated polypeptide chain (133 amino acid residues).
Molecular mass	15.5 kDa.
Source	Produced in *E. coli*.
Product format	Lyophilized from a 0.2 µm filtered buffer solution.
Stabilizer	Mannitol and trehalose.
Purity	>97% as determined by SDS-PAGE.
Endotoxin level	Low endotoxin (<0.1 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.
Storage	Lyophilized Human IL-21, premium 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-21 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.

* The ED_{50} is determined by proliferation assay using mouse B9 hybridoma cells.

1.1 Background information

Interleukin 21 (IL-21) is a four α-helix bundle cytokine and closely related to IL-2, IL-4, and IL-15. IL-21 expression is restricted to activated $CD4^+$ T helper cells and NKT cells. Among T helper subsets, IL-21 is strongly produced by follicular T helper cells and Th17 cells, where IL-21 serves as an autocrine regulator and seems to sustain Th17 development. The functional receptor for IL-21, composed of the IL-21 receptor and the common γ-chain, is expressed on various hematopoietic cells including T, B, NK, and dendritic cells. Accordingly, IL-21 exerts pleiotropic effects on both cellular and humoral immune responses, such as stimulation of lymphocyte proliferation, promotion of $CD8^+$ T cell and NK cell cytotoxicity, and differentiation of B cells into plasma cells.
Important roles for IL-21 have been proposed with regard to its anti-tumor activity and for the development of autoimmune diseases.[1]

1.2 Applications

Human IL-21 can be used for a variety of applications, including:

- *In vitro* differentiation of naive $CD4^+$ T cells towards Th17 cells.
- Study of IL-21 influence on NK cell development and function.
- *In vitro* differentiation of plasma cells from naive B cells.
- Investigation of IL-21–mediated molecular signaling pathways.

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

2. Reference

1. Spolski, R. and Leonard, W. J. (2008) Interleukin-21: basic biology and implications for cancer and autoimmunity. Annu. Rev. Immunol. 26: 57–79.

All protocols and data sheets are available at **www.miltenyibiotec.com**.

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