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1. Description

Products	Mouse IL-21, research grade. Recombinant mouse interleukin 21.						
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Content in µg	Order no.						
2	130-108-948						
10	130-108-949						
Biological activity	The ED ₅₀ is ≤1 ng/mL corresponding to an activity of ≥1×10 ⁶ U/mg. Note: The ED ₅₀ is determined by proliferation assay using human ANBL-6 cells.						
Primary structure	Single, non-glycosylated polypeptide chain (130 amino acid residues including an N-terminal methionine).						
Molecular mass	15.1 kDa.						
Source	Produced in <i>E. coli</i> .						
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.						
Stabilizer	None.						
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 Mouse IL-21, 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-21, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 20 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 21 (IL-21) is a four α -helix bundle cytokine and closely related to IL-2, IL-7, 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.

1.2 Applications

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

- *In vitro* differentiation of naive CD4⁺ T cells towards TH17 cells and T_{FH}.
- *In vitro* expansion of CD8⁺ T cells and enhancement of cytotoxic T cell function.
- Study of 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. References

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

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