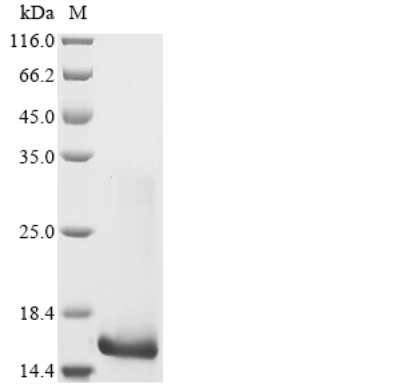
Recombinant Human Interleukin-21 (IL21), partial

Product Code	CSB-YP872537HU
Abbreviation	Recombinant Human IL21 protein, partial
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q9HBE4
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol.If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Human Interleukin-21(IL21)
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	QGQDRHMIRMRQLIDIVDQLKNYVNDLVPEFLPAPEDVETNCEWSAFSCFQKAQLKSANTGNNERIINVSIKKLKRKPPSTNAGRRQKHRLTCPSCDSYEKKPPKEFLERFKSLLQKMIHQHLSSRTHGSEDS
Research Area	Immunology
Source	Yeast
Target Names	IL21
Expression Region	30-162aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 5°C for up to one week.
Tag Info	C-terminal 6xHis-tagged
Mol. Weight	16.9 kDa
Protein Length	partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The recombinant human IL21 protein, containing a C-terminal 6xHis tag, is expressed in E. coli for ease of production and purification. The IL21 gene fragment (30-162aa) is co-inserted into an expression vector with the tag gene and introduced into yeast cells. The transfected yeast cells are induced to express the target IL21 protein by adding IPTG. The IL21 protein is then harvested through cell lysis. Ni-NTA affinity chromatography is utilized to purify the protein, as the His tag binds to the nickel ions present in the resin. After elution, the purity of the recombinant IL21 protein is confirmed using SDS-PAGE, which shows over 85% purity.

Human IL 21 is a pleiotropic cytokine primarily produced by activated $CD4^+$ T cells and NKT cells. It plays a crucial role in regulating immune responses, particularly in the proliferation and differentiation of various immune cell types, including B cells, T cells, and NK cells. IL21 signals through the IL21R, which is expressed on a variety of immune and non-immune cells, activating several intracellular signaling pathways, notably the JAK/STAT pathway, particularly STAT3 and STAT4 [1][2].

IL21 is known for its significant effects on B cell biology. It enhances the differentiation of B cells into immunoglobulin-secreting cells (ISCs), promoting antibody production. IL21 also influences T-cell responses. It enhances the proliferation and effector functions of $CD8^+$ T cells and NK cells, promoting their cytotoxic activity [3][4]. However, IL21 can also down-regulate certain activation markers on these cells, indicating a complex role in modulating immune responses [3][5]. While IL21 promotes the expansion of CD8+ T cells, it can inhibit their TCR-independent expansion under specific conditions [5]. This duality highlights the context-dependent nature of IL21's effects on immune cells.

Moreover, IL21 has been implicated in the regulation of Tfh cells, which are critical for B cell help and antibody responses. Dendritic cells can induce the differentiation of IL21-producing Tfh-like cells through IL12 signaling, further emphasizing the interconnectedness of cytokine networks in immune regulation [6][7]. Additionally, IL21 has been shown to counteract the suppressive effects of Tregs on $CD4^+$ T lymphocytes, thereby enhancing T cell activation and function [8].

References:

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Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.