

Human IL-21 Superior Stable Mutant Protein, premium grade

Catalog # IL1-H5113



BIOSYSTEMS
Acro

Product Details

Our Recombinant Human IL-21 Superior Stable Mutant Protein, developed via an AI-modified and experimentally validated closed-loop efficient protein design platform, is the optimal IL-21 mutant with superior thermal stability and activity compared to wild-type IL-21, making it more suitable for various immune cell culture processes. This reduces medium replacement frequency, lowers contamination risks from frequent operations, and saves costs/time for immune cell culture by minimizing reagent consumption and labor, especially in large-scale applications.

This product is designed and developed utilizing our proprietary AI technology, which is protected by patent rights. We retain full commercial rights to this product.

It is produced under our rigorous quality control system that incorporates a comprehensive set of tests including sterility and endotoxin tests. Product performance is carefully validated and tested for compatibility for cell culture use or any other applications in the early preclinical stage. When ready to transition into later clinical phases, we also offer a custom GMP protein service that tailors to your needs. We will work with you to customize and develop a GMP-grade product in accordance with your requests that also meets the requirements for raw and ancillary materials use in cell manufacturing of cell-based therapies.

Synonym

IL21, Za11, Interleukin-21

Molecular Characterization

This protein carries no "tag".

The protein has a calculated MW of 15.6 kDa. The protein migrates as 16 kDa $\pm$ 3 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE).

Endotoxin

Less than 0.01 EU per μ g by the LAL method / rFC method.

Host Cell Protein

<0.5 ng/ μ g of protein tested by ELISA.

Host Cell DNA

<0.02 ng/ μ g of protein tested by qPCR.

Sterility

Negative

Mycoplasma

Negative

Purity

>95% as determined by SDS-PAGE.

>95% as determined by SEC-HPLC.

Formulation

Lyophilized from 0.22 μ m filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

Reconstitution

Please see Certificate of Analysis for specific instructions.

For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.

Storage

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

Please avoid repeated freeze-thaw cycles.

This product is stable after storage at:

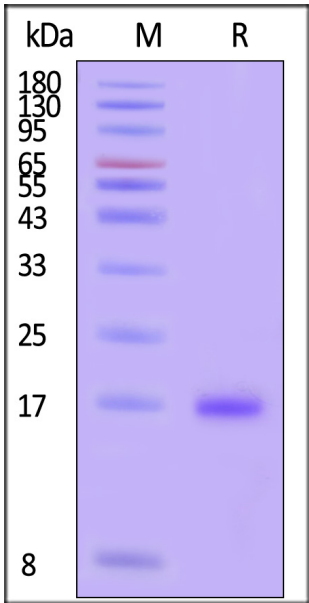
- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

ACRO Quality Management System

- QMS(ISO, GMP).

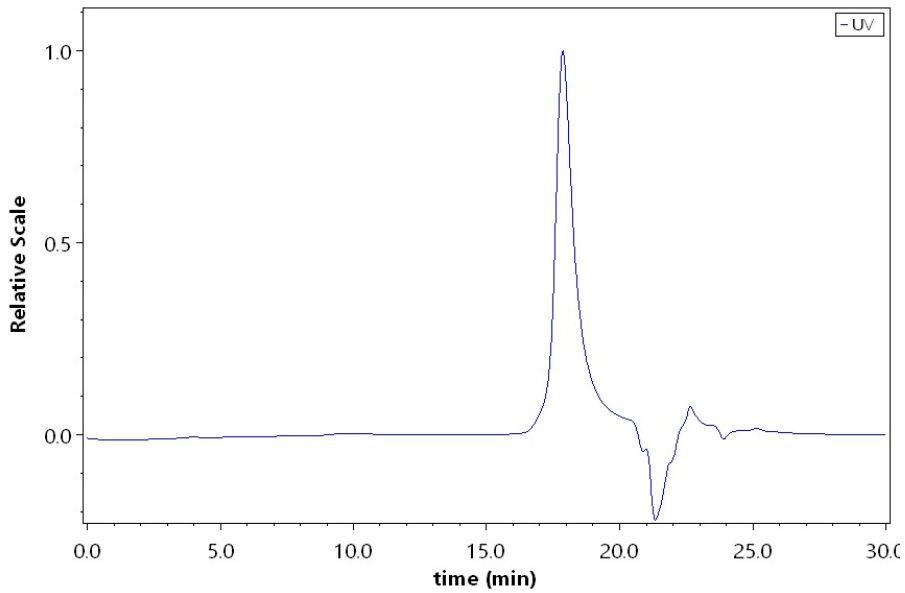
- [Quality Advantages](#)
- [Quality Control Process](#)

SDS-PAGE



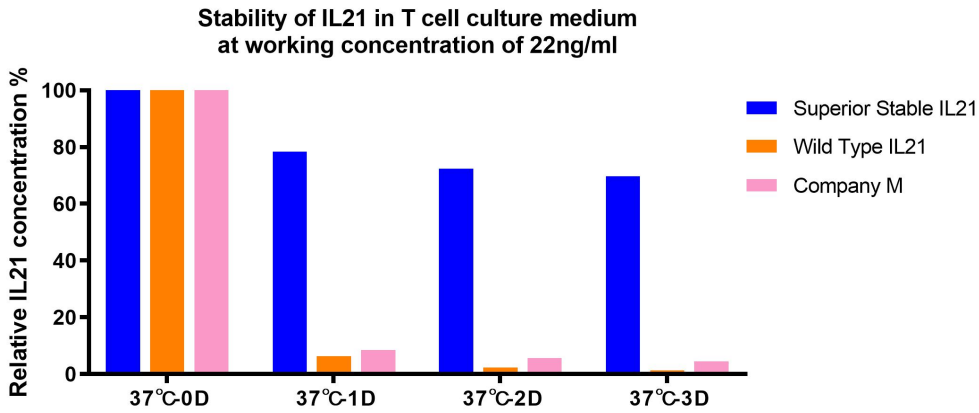
Human IL-21 Superior Stable Mutant Protein, premium grade on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With [Star Ribbon Pre-stained Protein Marker](#)).

SEC-HPLC



The purity of Human IL-21 Superior Stable Mutant Protein, premium grade (Cat. No. IL1-H5113) was greater than 95% as determined by SEC-HPLC.

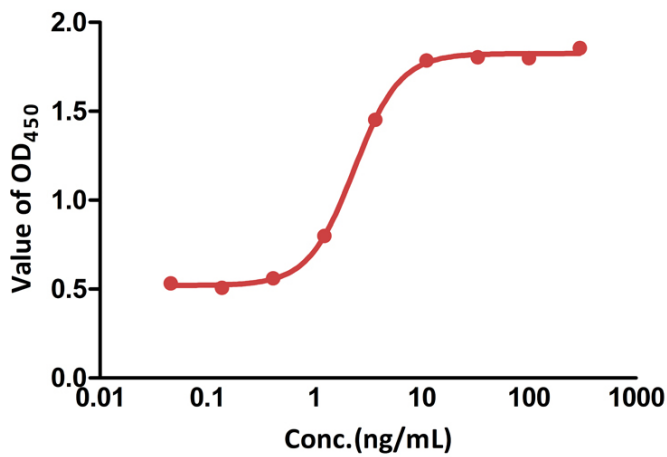
Heat Stability



Recombinant Human IL-21 stability studies in the T culture medium. Human IL-21 Superior Stable Mutant Protein, premium grade (Cat. No. IL1-H5113) or wild-type (WT) Human IL-21 Protein, premium grade (Cat. No. IL1-H5114), or Company M Human IL-21 Protein were added in the T cell medium at an initial concentration of 22 ng/mL, respectively. IL-21 concentration tested with resDetect™ Human Interleukin-21 (IL-21) ELISA Kit (Cat. No. CRS-A010). Following 3 days of treatment at 37°C, Recombinant Human IL-21 Superior Stable Mutant Protein retained the concentration 70%, demonstrating its enhanced thermal stability. In contrast, the WT Recombinant Human IL-21 Protein exhibited significant concentration loss, indicating inferior thermal stability.

Bioactivity-CELL BASE

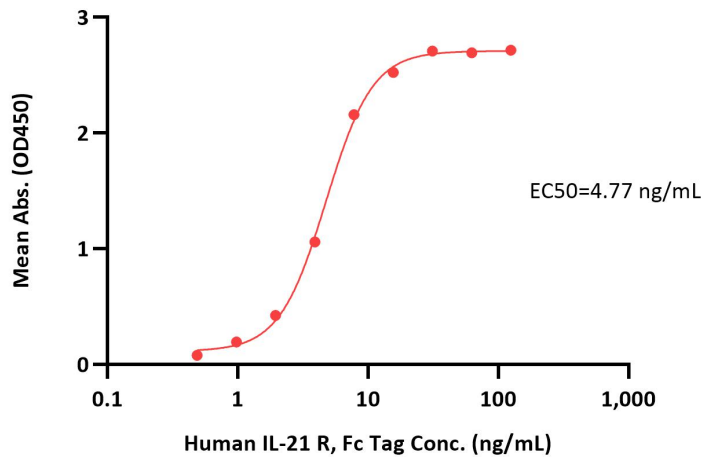
Human IL-21 Superior Stable Mutant Protein,premium grade stimulates secretion of IFN-γ by NK92



Human IL-21 Superior Stable Mutant Protein, premium grade (Cat. No. IL1-H5113) stimulates secretion of IFN-γ by NK-92 human natural killer lymphoma cells stimulated with Human IL-15, premium grade (Cat. No. IL5-H4117), The specific activity of Human IL-21 Superior Stable Mutant Protein, premium grade is > 4.00 x 10⁵ U/mg (QC tested).

Bioactivity-ELISA

Human IL-21 Superior Stable Mutant Protein, premium grade ELISA
0.5 μg of Human IL-21 Superior Stable Mutant Protein, premium grade per well



Immobilized Human IL-21 Superior Stable Mutant Protein, premium grade (Cat. No. IL1-H5113) at 5 μg/mL (100 μL/well) can bind Human IL-21 R, Fc Tag with a linear range of 0.5-8 ng/mL (QC tested).

Background

Interleukin-21 (IL-21) is a secreted protein which belongs to the IL-15 / IL-21 family. Interleukin-21 / IL-21 belongs to a family of cytokines that bind to a composite receptor consisting of a private receptor (IL21R) and the common cytokine receptor gamma chain (gamma(C)). Interleukin-21 / IL-21 impacts a number of cell types, including CD8+ memory T cells, NK cells and subsets of CD4 memory T cells. The IL-21R is widely distributed on lympho-haematopoietic cells. IL-21 is a pleiotropic cytokine produced by CD4+ T cells in response to antigenic stimulation. Its action generally enhances antigen-specific responses of immune cells. IL-21 promotes the anti-tumor activity of CD8+ T-cells and NK cells. IL-21 exerts its effect through binding to a specific type I cytokine receptor, IL-21R, which also contains the γ chain (γc) found in other cytokine receptors including IL-2, IL-4, IL-7, IL-9 and IL-15. The IL-21/IL-21R interaction triggers a cascade of events which includes activation of the tyrosine kinases JAK1 and JAK3, followed by activation of the transcription factors STAT1 and STAT3.

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