

## Recombinant Human Interleukin-21 (rHu IL-21)

Lyophilized (40 µg) Cat. # AK9833-0040

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### 1. Why use Akron's Recombinant Human Interleukin-21 (rHu IL-21)?

IL-21 has been shown to enhance and sustain the populations and activity levels of NK cells and cytotoxic T cells. It is important for the proliferation and differentiation of T cells, B cells, and NK cells. Akron's cGMP-compliant rHu IL-21 can be used to promote the activation and proliferation of a range of cell types, including – but not limited to – CD4+ and CD8+ T cells, B cells, macrophages, monocytes, and dendritic cells (DCs).

### 2. What are the recommended storage conditions for Akron's rHu IL-21 (lyophilized)?

We recommend storing this product at 2-8 °C.

### 3. What are the shipping conditions for Akron's rHu IL-21?

This product ships on cold packs.

### 4. What is the shelf-life for Akron's rHu IL-21?

This product has a shelf life of 24 months after the date of manufacture under recommended controlled storage conditions.

### 5. How do you reconstitute Akron's rHu IL-21?

It is recommended that you reconstitute using water for injection (WFI). This product is fully soluble in aqueous solution at 0.1 mg/mL.

### 6. How long can I store Akron's rHu IL-21 after reconstitution?

We do not suggest an ideal storage medium or storage conditions for reconstituted aliquots, as this product is intended to be used in a single application within cGMP manufacturing protocols. Storage after reconstitution is affected by many factors such as benchtop methodology, concentration, diluent, storage temperature, etc.

### 7. What organism is used to express Akron's rHu IL-21?

This product is expressed in *E. coli*.

### 8. How is Akron's rHu IL-21 different than native IL-21?

Akron's rHu IL-21 is not glycosylated because it is derived from *E. coli*, and it contains an N-terminal methionine. It is likely that the aggregation state is also different than native IL-21.

### 9. What is the molecular weight of Akron's rHu IL-21?

Akron's rHu IL-21 has a theoretical molecular weight of 15,410 Da. Akron's rHu IL-15 apparent molecular weight is indistinguishable when compared to a reference standard using Non-Reducing SDS-PAGE. Every batch of rHu IL-21 is analyzed by SDS-PAGE and must meet the molecular weight release specification between 14,000-17,000 Da.

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### 10. Do you have a Master File (MF) available for this product?

Yes, Akron's rHu IL-21 has a Type II eCTD MF (#026086) on file with FDA. We can provide you a Letter of Authorization that will permit the FDA to refer to the information on file in support of your submissions.

### 11. Does this product have a TSE/BSE statement

Yes, a TSE/BSE statement is available upon request for this product.

### 12. Are animal-derived materials used in the manufacture of this product?

All raw materials, components, sub-components, and consumables used in the manufacturing of this product are either animal-free or in compliance with EMEA/410/01 rev. 3. Please see the BSE-TSE Statement.

### 13. Is virus and pathogen inactivation included in the manufacturing process?

No, because viruses that infect bacteria (bacteriophages) do not pose a known threat to human cells. Virus reduction manufacturing steps are usually not included when purifying material from a bacterial host, as is the case with Akron's rHu IL-21. We use an *E. coli*-based expression system that does not require additional virus reduction.

### 14. What safety testing is done on this product?

Every lot of final product is tested and released, with specifications and methods per USP/EP, for both Endotoxin (USP <85> / EP 2.6.14) and Sterility (USP <71> / EP 2.6.1).

### 15. Which cell types are suitable?

Akron's cGMP-compliant rHu IL-21 can be used to promote the activation and proliferation of a range of cell types, including – but not limited to – CD4+ and CD8+ T cells, B cells, macrophages, monocytes, and dendritic cells (DCs).

### 16. Do you have an SDS for this product?

Yes, an SDS is available upon request for this product.

### 17. How does Akron measure activity for rHu IL-21?

Akron uses a validated proliferation assay based on the B9 mouse hybridoma cell line to report activity. The rHu IL-21 induced proliferation of B9 cells is used to determine an activity estimate using an ED50 assay calibrated with an internal standard, as there is no available World Health Organization international standard for Interleukin-21.

### 18. What is the intended use for the product?

For research use or further manufacturing use in *ex vivo* cell therapy applications. This product is not intended for direct *in vivo* use or for direct clinical use as a drug, therapeutic, biologic, or medical device.



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### 19. What packaging options are available?

Akron's lyophilized rHu IL-21 is packaged into generic colorless vial bottles made from Type I borosilicate glass that are sterilized before aseptic filling. These ampoule bottles have a nominal fill volume of 2.0 mL with a minimum overflow volume of 3.0 mL and have been shown to have an arsenic content of < 0.1 ppm. The bottles are closed with a gray bromobutyl rubber stopper and sealed with a flip-top aluminum seal that are both sterile before aseptic filling. Akron also offers our rHu IL-21 in a liquid formulation packaged into closed-system bags coming soon (inquire for details on bags).

### 20. Do I need to use a sterile needle and syringe to remove the product from the vial?

No, our vial bottle packaging was chosen for easy access with a laboratory pipette.

For more information on our available products or for technical assistance, see contact info below.  
For contract orders under master supply agreement, please inquire.