

# Shenandoah CTGrade Recombinant Human IL-21

Optimize Cell Proliferation and Function for Immunotherapy

CTGrade rh IL-21 is a recombinant human protein that is produced from *E. coli* and is designed to support basic, translational, and clinical research, as well as commercial applications, and offers:

- High biological activity verified by a relevant bioactivity assay
- Low endotoxin levels
- $\geq 97\%$  purity
- High lot-to-lot consistency



## Making the Right Decision the First Time

When designing robust cell and gene therapy processes, making the right decision the first time is critical for delivering therapies to market.

Shenandoah CTGrade interleukins and growth factors are formulated to reduce variability and ensure predictable workflow performance in the proliferation and differentiation of T cells, natural killer (NK) cells, B cells, and chimeric antigen receptor (CAR T) cells.

Together with our unparalleled regulatory guidance and assurance of expected performance, CTGrade interleukins and growth factors help cell and gene therapy developers proactively deliver the full promise of their discoveries.



# Achieve Predictable Workflows and Reduce Variability with CTGrade Interleukins and Growth Factors

The predictability and performance of CTGrade interleukins and growth factors help cell and gene therapy developers accelerate delivery of life-changing therapies to market.

The biological activity of CTGrade interleukins and growth factors is standardized, where applicable, to WHO International standards, providing cell and gene therapy developers consistent, lot-to-lot biological activity and performance.

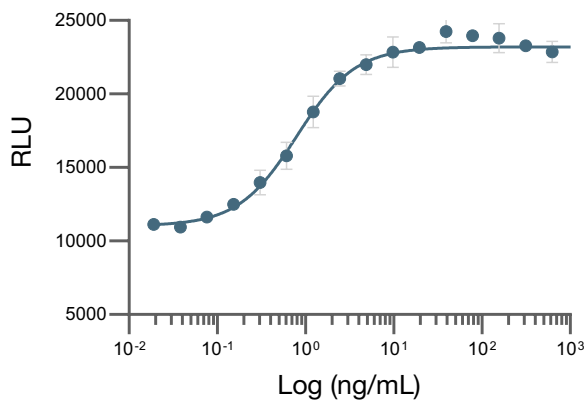
The CTGrade products are manufactured in a facility that does not use or process beta-lactam containing materials. No animal- or human-derived materials were used during manufacturing or as ingredients. These products are manufactured, tested, and released in an ISO 9001:2015 certified facility following cGMP practices. USP chapter <1043> for ancillary materials has been considered in the manufacture of these products.

IL-21 is a common chain cytokine regulating many cell types of the immune system. The IL-21 receptor (IL-21R) activates the JAK/STAT signaling pathway and is expressed on T, B, and natural killer (NK) cells.

- Plays an important role in the development of humoral immunity through its effects on B cell biology including differentiation, affinity maturation and memory responses.
- Regulates T cell responses including survival of CD8+ T cells and inhibition of Treg cells. IL-21 plays a pivotal role in Hodgkin's lymphoma and suppresses contact hypersensitivity reactions.
- Promotes a less differentiated phenotype of CAR T cells while promoting the effector functions of the engineered cells

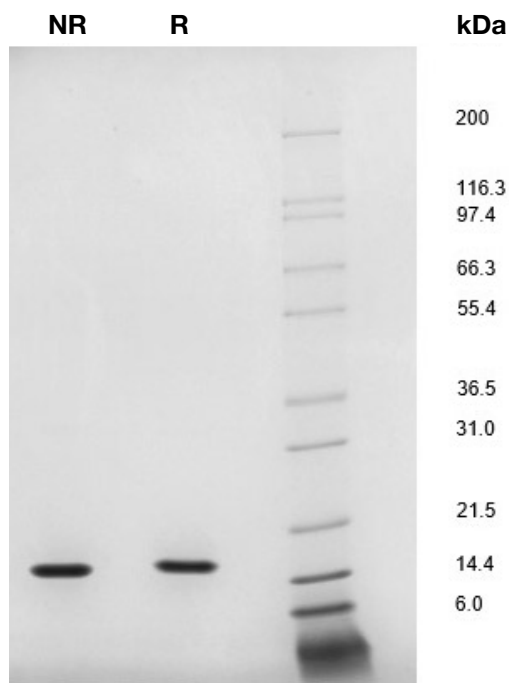
# Drive Scale-up Readiness with Performance-based Solutions

## Cell-Based Proliferation Assay



**Figure 1.** The biological activity of CTGrade rh IL-21 was determined in a B9 cell-based proliferation assay.

## SDS-PAGE Showing a Single Prominent Band at 15.4 kDa



**Figure 2.** CTGrade rh IL-21 (1 µg) was resolved with SDS-PAGE under non-reducing (NR) and reducing (R) conditions and visualized by InstantBlue™ staining showing a single prominent band at 15.4 kDa.

## Shenandoah CTGrade Recombinant Protein Ordering Information

Product Description	Catalog #	Size*	Additional Info
CTGrade rh IL-21	500-09	50 µg 100 µg 1 mg	Provided in lyophilized form

### Related Products

Product Description	Catalog #	Size*	Additional Info
PRIME-XV T Cell CDM	91154	1 L	Chemically defined, animal component-free formula Does not contain antibiotics or phenol red
PRIME-XV T Cell Expansion XSFM	91141	1 L	Xeno-free and serum-free medium and contains Gentamicin
PRIME-XV NK Cell CDM	91215	1 L	Chemically defined, animal component-free formula Does not contain antibiotics or phenol red
Water for Injection	9309	1 L	Bottle Packaging

\* Custom sizes and packaging available on request.

To discuss your requirements, contact us at [getinfo@irvinesci.com](mailto:getinfo@irvinesci.com)  
Or visit our website at [www.irvinesci.com/contact-us](http://www.irvinesci.com/contact-us)



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