

DESCRIPTION

Source *E. coli*-derived human IL-21 protein
Gln32-Ser162 with a N-terminal Met
Accession # Q9HBE4.3
Produced using non-animal reagents in an animal-free laboratory.

N-terminal Sequence Analysis Met

Predicted Molecular Mass 15 kDa

SPECIFICATIONS

SDS-PAGE 15-17 kDa, under reducing conditions.

Activity Measured in a cell proliferation assay using B9 mouse hybridoma cells.
The ED₅₀ for this effect is 5.00-50.0 ng/mL. The specific activity of Recombinant Human IL-21 is >1.00 x 10⁶ units/mg, which is calibrated against an internal reference standard for human IL-21.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >95%, by SDS-PAGE with quantitative densitometry by Coomassie® Blue Staining.

Formulation Supplied as a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

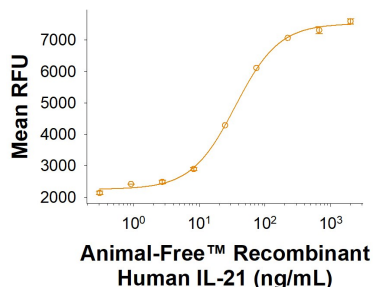
Shipping The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 6 months from date of receipt, ≤ -65 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after opening.
- 3 months, -20 to -70 °C under sterile conditions after opening.

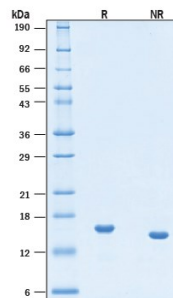
DATA

Bioactivity



Animal-Free™ Recombinant Human IL-21 Protein Bioactivity. Measured in a cell proliferation assay using B9 mouse hybridoma cells. The ED₅₀ for this effect is 5.00-50.0 ng/mL.

SDS-PAGE



Animal-Free™ Recombinant Human IL-21 Protein SDS-PAGE. 2 µg/lane of Animal-Free™ Recombinant Human IL-21 Protein (Catalog # BT-021-AFL/LQ) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 16 kDa, under reducing conditions.

BACKGROUND

Interleukin-21 (IL-21) is an approximately 14 kDa four-helix-bundle member of the family of cytokines that utilize the common gamma chain (γ_c) as a receptor subunit. γ_c is also a subunit of the receptors for IL-2, IL-4, IL-7, IL-9, and IL-15 (1). IL-21 is produced by activated T follicular helper cells (Tfh), Th17 cells, and NKT cells (2-6). It exerts its biological effects through a heterodimeric receptor complex of γ_c and the IL-21-specific IL-21 R (2, 7). Tfh-derived IL-21 plays an important role in the development of humoral immunity through its autocrine effects on the Tfh cell and paracrine effects on immunoglobulin affinity maturation, plasma cell differentiation, and B cell memory responses (4, 8, 9). It is also required for the migration of dendritic cells to draining lymph nodes (10). IL-21 regulates several aspects of T cell function. It co-stimulates the activation, proliferation, and survival of CD8+ T cells and NKT cells and promotes Th17 cell polarization (3, 5, 6, 11, 12). It blocks the generation of regulatory T cells and their suppressive effects on CD4+ T cells (13, 14). IL-21 R engagement enhances the cytolytic activity and IFN- γ production of activated NK cells but limits the expansion of resting NK cells (15). In addition, IL-21 suppresses cutaneous hypersensitivity reactions by limiting allergen-specific IgE production and mast cell degranulation (16). Dysregulation of the IL-21/IL-21 R system contributes to the development of multiple immunological disorders (1, 17). The 133 amino acid (aa) mature human IL-21 shares 63% and 61% aa sequence identity with mouse and rat IL-21, respectively. Alternative splicing generates an additional isoform with a substitution of the C-terminal 16 amino acids (18).

References:

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MANUFACTURING SPECIFICATIONS**Animal-Free Manufacturing Conditions**

Our dedicated controlled-access animal-free laboratories ensure that at no point in production are the products exposed to potential contamination by animal components or byproducts. Every stage of manufacturing is conducted in compliance with R&D Systems' stringent Standard Operating Procedures (SOPs). Production and purification procedures use equipment and media that are confirmed animal-free.

Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.
- For *ex vivo* research or bioproduction, [additional documentation](#) can be provided.

[Please read our complete Animal-Free Statement.](#)