

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 Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute 25 µg size at 250 µg/mL in PBS and all the other sizes at 500 µg/mL in PBS.

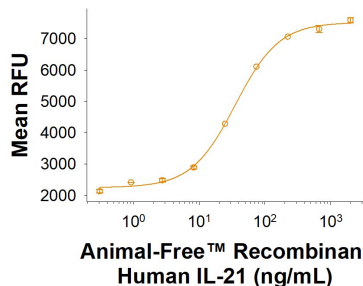
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

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

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

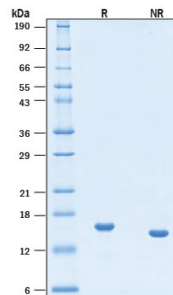
DATA

Bioactivity



Animal-Free™ Recombinant Human IL-21 Protein Bioactivity. Recombinant Human IL-21 (Catalog # BT-021-AFL) as 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) 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.

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