

Human Interleukin-21 (hIL-21)

<input type="checkbox"/> SC 10 µg (With Carrier)	<input type="checkbox"/> SF 10 µg (Carrier Free)
<input type="checkbox"/> LC 50 µg (With Carrier)	<input type="checkbox"/> LF 50 µg (Carrier Free)

Multi-milligram quantities available

rev. 11/13/09



Cell Signaling
TECHNOLOGY®

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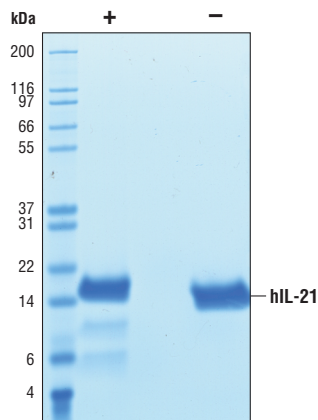
This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Source: Recombinant human IL-21 (hIL-21) Gln30-Ser155 (Accession # NM_021803) was expressed in human 293 cells at Cell Signaling Technology.

Molecular Characterization: Recombinant hIL-21 contains no "tags" and the nonglycosylated protein has a calculated MW of 15,463. DTT-reduced and non-reduced protein migrate as 16 kDa polypeptides, with non-reduced having slightly greater mobility due to intramolecular cystines. The expected amino-terminal QGQDR of recombinant hIL-21 was verified by amino acid sequencing.

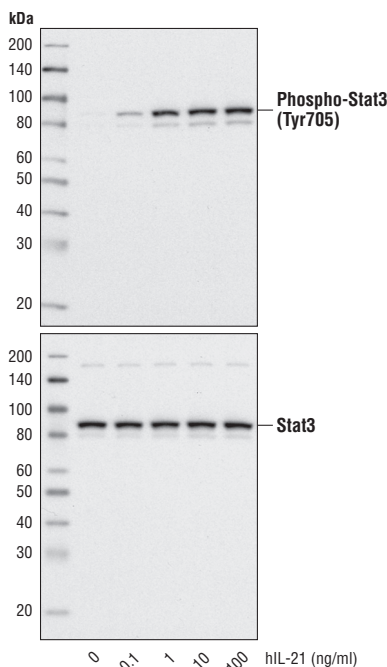
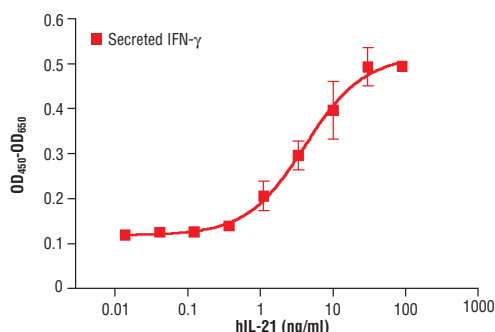
Endotoxin: Less than 0.01 ng endotoxin/1 µg hIL-21.

Purity: >98% as determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant hIL-21. Less than 9% is nicked after Arg114 to generate 6 kDa and 10 kDa polypeptides observed in reduced (+) hIL-21.



The purity of recombinant hIL-21 was determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant hIL-21 and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of recombinant hIL-21 was determined by its ability to induce IFN-γ production by NK-92 cells. The ED₅₀ of each lot is between 1.0-6.0 ng/ml.



Western blot analysis of extracts from NK-92 cells, untreated or treated with hIL-21 for 15 minutes, using Phospho-Stat3 (Tyr705) (D3A7) XP™ Rabbit mAb #9145 (upper) or Stat3 Antibody #9132 (lower).

Formulation: With carrier: Lyophilized from a 0.22 µm filtered solution of PBS, pH 7.2 containing 20 µg BSA per 1 µg hIL-21.

Carrier free: Lyophilized from a 0.22 µm filtered solution of PBS, pH 7.2.

Reconstitution:

With carrier: Add sterile PBS, or PBS containing 1% bovine or human serum albumin or 5-10% FBS to a final hIL-21 concentration of greater than 50 µg/ml. Solubilize for 30 minutes at room temperature with occasional gentle vortexing.

Carrier free: Add sterile PBS, or PBS containing protein to minimize absorption of hIL-21 to surfaces. Solubilize for 30 minutes at room temperature with occasional gentle vortexing. Stock hIL-21 should be greater than 50 µg/ml.

Storage: Stable in lyophilized state at 4°C for 1 year after receipt. Sterile stock solutions reconstituted with carrier protein are stable at 4°C for 2 months and at -20°C for 6 months. Avoid repeated freeze-thaw cycles.

Maintain sterility. Storage at -20°C should be in a manual defrost freezer.

Applications: Optimal concentration for the desired application should be determined by the user.

Background: IL-21 is produced by Th17, T follicular helper (Tfh) and NKT cells (1-3). Targets include T cells, B cells, NK cells and dendritic cells (1-3,5). IL-21 induces proliferation and activation of NK cells, thereby up-regulating IFN-γ production and cytotoxic activity (1,3,4). IL-21 increases proliferation and survival of CD40 primed B cells (1,2) and appears to have a significant role in plasma cell differentiation (2). IL-21 binds to a complex consisting of IL-21Rα and the common γ chain, γc. IL-21 binding activates the Jak1/Jak3, Stat1, Stat3 and Stat5 pathway. IL-21 binding can also activate the MAP kinase and PI3K/Akt pathways.

Background References:

- (1) Parrish-Novak, J. et al. (2000) *Nature* 408, 57-63.
- (2) Parrish-Novak, J. et al. (2002) *J Leukoc Biol* 72, 856-63.
- (3) Konforte, D. et al. (2009) *J Immunol* 182, 1781-7.
- (4) Strengell, M. et al. (2002) *J Immunol* 169, 3600-5.
- (5) Davis, I.D. et al. (2007) *Clin Cancer Res* 13, 6926-32.

◀ The production of IFN-γ by NK-92 cells cultured with increasing concentrations of hIL-21 was assessed. Media from cells incubated with hIL-21 for 24 hours was collected and assayed for IFN-γ by ELISA and the OD₄₅₀-OD₆₅₀ was determined.

Material Safety Data Sheet (MSDS) for Human Interleukin-21 (hIL-21)



I. Identification:

Product name: Human Interleukin-21 (hIL-21)
Product Catalog: 8920
CAS#: 251100-02-4
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is a lyophilized mixture of substances. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than < 0.1% are considered non-hazardous.

Substance Name: Human Interleukin 21, recombinant

Ingredients:	Carrier-Free	With Carrier	CAS#
Human Interleukin-21, recombinant, hIL-21	98%	5%	251100-02-4
Bovine serum albumin	0%	95%	9048-46-8

III. Hazard Identification:

This product is not for use in humans. It is intended for research purposes only.
 To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

EMERGENCY OVERVIEW: No known hazards.

HMIS	Health: 0	Flammability: 0	Reactivity: 0
NFPA	Health: 0	Flammability: 0	Reactivity: 0

IV. First Aid Measures:

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If swallowed, wash out mouth with water provided person is conscious. Get medical attention.

Skin exposure: In case of contact, immediately wash skin with soap and water for at least 15 minutes. Remove contaminated clothing. Wash clothing before reuse.

Eye exposure: In case of contact with eyes, immediately flush eyes with water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Data not available.

Autoignition Temperature: Data not available.

Explosion: Data not available.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes. May emit toxic fumes under fire conditions.

VI. Accidental Release Measures: Wear appropriate personal protective equipment. Sweep up material and avoid raising dust. Transfer to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store in tightly closed container at -20°C. Avoid inhalation. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local and/or general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear protective safety glasses or chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

IX. Physical And Chemical Properties

Appearance: lyophilized powder
pH: data not available
Melting Point: data not available
Boiling Point: data not available
Freezing Point: data not available
Volatile Organic Compounds: data not available
Solubility in water: soluble in phosphate buffered saline

X. Stability and Reactivity:

Stability: Stable under normal conditions.

Conditions/materials to avoid: Data not available

Hazardous Decomposition: Data not available.

XI. Toxicological Information:

Acute Effects: Data not available

Chronic Effects: Data not available

Potential Health Effects: Not established.

Inhalation: May be harmful, may be irritating to mucous membranes and upper respiratory tract.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed.

XII. Ecological Information:

No data available.

XIII. Disposal Considerations: Dispose of in accordance with federal, state, local environmental regulations.

XIV. Transport Information:

DOT: This substance is considered Non-Hazardous for transport.

IATA: This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

EU Regulations/Classifications/Labeling Information: None.

US Regulatory Information:

SARA Listed: No.

Canada (WHMIS): DSL No, NDSL No.

XVI. Other Information:

This compound is sold only for research use only. It is not for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.