Recombinant Human IL-21 GMP

Catalog Number: 8879-GMP

DESCRIPTION

Source	*E. coli*-derived human IL-21 protein Gln32-Ser162, with a N-terminal Met Accession # Q9HBE4.3 Produced in an animal-free laboratory. Manufactured and tested under cGMP guidelines
N-terminal Sequence Analysis	Met-Gln-Asp-Arg-His-Met-Ile-Arg-Met-Arg
Predicted Molecular Mass	15 kDa

SPECIFICATIONS

SDS-PAGE	16 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using B9 mouse hybridoma cells. The ED_{50} for this effect is 5.00-50.0 ng/mL. The specific activity of recombinant human IL-21 is >1.00 x 10^6 units/mg, which is calibrated against an internal reference standard for human IL-21. Measured by its ability to enhance IFN-γ secretion in NK-92 human natural killer lymphoma cells. The ED_{50} for this effect is ≤8 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Host Cell Protein	< 0.1 ng per µg of protein when tested by ELISA.
Mycoplasma	Negative for Mycoplasma.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100-200 µg/mL in PBS.
Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • A minimum of 12 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution.

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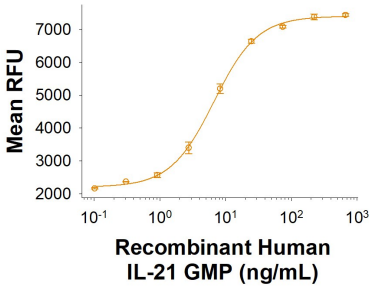
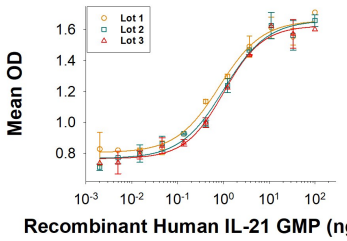
DATA

Bioactivity



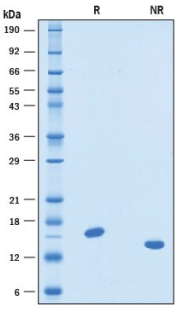
Recombinant Human IL-21 GMP Protein Bioactivity. Recombinant Human IL-21 GMP (Catalog # 8879-GMP) induces B9 mouse hybridoma cell proliferation. The ED_{50} for this effect is 5.00-50.0 ng/mL

Bioactivity



Recombinant Human IL-21 GMP Protein Bioactivity GMP-grade Recombinant Human IL-21 (Catalog # 8879-GMP) enhances IFN-gamma secretion in NK-92 human natural killer lymphoma cells. The ED_{50} for this effect is ≤8 ng/mL. Three independent lots were tested for activity and plotted on the same graph to show lot-to-lot consistency of GMP IL-21.

SDS-PAGE



Recombinant Human IL-21 GMP Protein SDS-PAGE 2 µg/lane of GMP-grade Recombinant Human IL-21 (Catalog # 8879-GMP) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing R band at 16.4 kDa and NR band at 14.8 kDa, respectively.

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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