Recombinant Human IL-21 (carrier-free)

Catalog# / Size	571202 / 10 µg 571204 / 25 µg 571206 / 100 µg 571208 / 500 µg
Regulatory Status	RUO
Other Names	Interleukin 21
Description	IL-21 was identified by a functional screening from conditioned medium of activated T cells using Baf3-IL-21R transfectants. In normal B cells, IL-21 can mediate cell proliferation, growth arrest, and terminal differentiation, or apoptosis, depending on their activation status. IL-21 enhances B cell proliferation following incubation with an activating CD40 antibody. This result suggests that IL-21 enhances B cell function following T:B cell interactions. Nevertheless, IL-21 inhibits the proliferation of murine and human B cells stimulated with anti-IgM antibodies. In addition, IL-21 enhances proliferation, cytotoxic activity, and IFNγ production by CD8-effector T cells, and induces terminal differentiation of activated natural killer (NK) cells. Also, IL-21 can drive Th17 responses in conjunction with TGF-β. Nevertheless, IL-21 is not essential for the differentiation of Th17 cells *in vitro* or *in vivo,* as it was showed using IL-21 and IL-21R-deficient mice. IL-6 induces the production of IL-21 from CD4 T cells upon TCR stimulation. In addition, IL-6 and IL-21 are key players in the Tfh differentiation, characterized by increased protein expression of both Bcl-6 and CXCR5. IL-21R complex is formed with the IL-21R-alpha chain and the common subunits (γc) shared with other interleukins, such as IL-2, IL-4, IL-7, IL-9, and IL-15.

Product Details

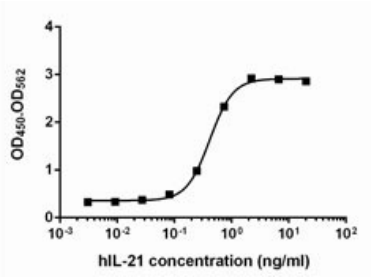
Source	Human IL-21, amino acids Gln30-Ser162 (Accession# NM_021803) was expressed in *E. coli*.
Molecular Mass	The 133 amino acid recombinant protein has a predicted molecular mass of approximately 15.5 kD. The DTT-reduced and non-reduced protein migrate at approximately 16 kD by SDS-PAGE. The N-terminal amino acid is Glutamine.
Purity	> 95%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 µm filtered protein solution is in PBS and 1 mM EDTA.
Endotoxin Level	Less than 0.01 ng per µg cytokine as determined by the LAL method.
Concentration	10 and 25 µg sizes are bottled at 200 µg/mL. 100 µg size and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. **Avoid repeated freeze/thaw cycles.**
Activity	The ED_{50} is 0.6-3.0 ng/ml, corresponding to a specific activity of 8.3×10^5 - 3.3×10^6 units/mg as determined by a dose-dependent induction of IFNγ secretion by NK-92 cells.
Application	Bioassay
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee. If you have any concerns, contact us at tech@biolegend.com.
Product Citations	1. Dai Q, *et al.* 2020. Front Immunol. 11:539654. PubMed

2. Khanam A, *et al.* 2021. Front Immunol. 11:599648. PubMed
3. Zorro MM, *et al.* 2020. J Autoimmun. 108:102422. PubMed
4. Guo Q, *et al.* 2022. Blood Adv. 6:5668. PubMed
5. Jenks SA *et al.* 2018. Immunity. 49(4):725-739 . PubMed
6. Vidard L, *et al.* 2019. J Immunol. 203:676. PubMed

Antigen Details

Structure	Interleukin
Distribution	CD4 activated T cells, Th17 cells, NK T cells
Function	IL-21 induces T and B cell proliferation, B cell Ig class switching to IgG production, decreases dendritic cell function, enhances differentiation of effector and central memory T cells, and regulates T cell and hematopoietic progenitor cell homeostasis.
Interaction	T cells, B cells, NK cells, and dendritic cells as well as some nonimmune cells, such as fibroblasts and epithelial cells.
Ligand/Receptor	IL-21R and the common γc subunit (CD132) are components of the IL-21R complex.
Cell Type	B cells, Dendritic cells, Hematopoietic stem and progenitors, Tregs
Biology Area	Cell Biology, Immunology, Innate Immunity, Stem Cells
Molecular Family	Cytokines/Chemokines
Antigen References	1. Parrish-Novak J, *et al.* 2000. *Nature* 408:57. 2. De Totero D, *et al.* 2006. *Blood* 107:3708. 3. Korn T, *et al.* 2007. *Nature* 448:484. 4. Coquet JM, *et al.* 2008. *J. Immunol.* 180:7097. 5. Dienz O, *et al.* 2009. *J. Exp. Med.* 206:69. 6. Kaplan MH, *et al.* 2011. *Blood* 117:6198. 7. Eto D, *et al.* 2011. *PLoS One* 6:e17739.
Gene ID	59067

Product Data



Human IL-21 induced-production of IFNγ by NK-92 cells.

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