PRODUCT INFORMATION

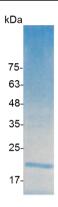
Croyez GMP® IL-21 (Interleukin-21), Human

immunoregulatory activity. Cytokines are proteinaceous signaling compounds the are major mediators of the immune response. They control many different cellular functions including proliferation, differentiation and cell survival/apoptosis but are also involved in several pathophysiological processes including viral infection and autoimmune diseases. IL-21 is a cytokine that has potent regulatory effect on cells of the immune system, including natural killer (NK) cells and cytotoxic cells that can destroy virally infected or cancerous cells. This cytokine induces cell division/proliferation in its target cells. Escherichia coli	Catalog number	C01026-GMP-100 / C01026-GMP-1000
immunoregulatory activity. Cytokines are proteinaceous signaling compounds the are major mediators of the immune response. They control many different cellular functions including proliferation, differentiation and cell survival/apoptosis but are also involved in several pathophysiological processes including viral infectior and autoimmune diseases. It21 is a cytokine that has potent regulatory effect on cells of the immune system, including natural killer (NK) cells and cytotoxic cells that can destroy virally infected or cancerous cells. This cytokine induces cell division/proliferation in its target cells. Escherichia coli	Package	100 μg / 1 mg
Animal-free reagent and laboratory Manufactured and tested under GMP guideline MQDRHMIRMRQLIDIVDQLKNYVNDLVPEFLPAPEDVETNCEWSAFSCFQKAGE LKSANTGNNERIINVSIKKLKRKPPSTNAGRRQKHRLTCPSCDSYEKKPPKEFL RFKSLLQKMIHQHLSSRTHGSEDS with polyhistidine tag at the C-terminus Endotoxin level <0.1 EU per 1 µg of the protein by the LAL method. Measure by its ability to enhance IFN gamma secretion in NK-92 cells. The ED ₅₀ for this effect is <10 ng/mL. Purity >95% as determined by SDS-PAGE. Purified by Ni-NTA chromatography. Formulation The protein was lyophilized from a solution containing 1X PBS, pH 8.0. It is recommended to reconstitute the lyophilized protein in sterile H ₂ O to concentration not less than 100 µg/mL and incubate the stock solution for at least 20 min to ensure sufficient re-dissolved. Lyophilized protein should be stored at -20°C. This product is stable for one year upon receipt, when handled and stored as instructed. Upon reconstitution, protein aliquots should be stored at -20°C or -80°C. Avoid repeated freeze/thaw cycles. Note Please use within one month after protein reconstitution.	Description	Interleukin-21 (IL-21) belongs to the IL-15/IL-21 family. It is a cytokine with immunoregulatory activity. Cytokines are proteinaceous signaling compounds that are major mediators of the immune response. They control many different cellular functions including proliferation, differentiation and cell survival/apoptosis but are also involved in several pathophysiological processes including viral infections and autoimmune diseases. IL-21 is a cytokine that has potent regulatory effects on cells of the immune system, including natural killer (NK) cells and cytotoxic T cells that can destroy virally infected or cancerous cells. This cytokine induces cell division/proliferation in its target cells.
Sequence LKSANTGNNERIINVSIKKLKRKPPSTNAGRRQKHRLTCPSCDSYEKKPPKEFL RFKSLLQKMIHQHLSSRTHGSEDS with polyhistidine tag at the C-terminus Endotoxin level <0.1 EU per 1 μg of the protein by the LAL method.	Source	Animal-free reagent and laboratory
Measure by its ability to enhance IFN gamma secretion in NK-92 cells. The ED ₅₀ for this effect is <10 ng/mL. Purity >95% as determined by SDS-PAGE. Purified by Ni-NTA chromatography. The protein was lyophilized from a solution containing 1X PBS, pH 8.0. It is recommended to reconstitute the lyophilized protein in sterile H ₂ O to concentration not less than 100 µg/mL and incubate the stock solution for at leas 20 min to ensure sufficient re-dissolved. Lyophilized protein should be stored at -20°C. This product is stable for one year upon receipt, when handled and stored as instructed. Upon reconstitution, protein aliquots should be stored at -20°C or -80°C. Avoid repeated freeze/thaw cycles. Note Please use within one month after protein reconstitution.	Sequence	MQDRHMIRMRQLIDIVDQLKNYVNDLVPEFLPAPEDVETNCEWSAFSCFQKAQ LKSANTGNNERIINVSIKKLKRKPPSTNAGRRQKHRLTCPSCDSYEKKPPKEFLE RFKSLLQKMIHQHLSSRTHGSEDS with polyhistidine tag at the C-terminus
Activity for this effect is <10 ng/mL.	Endotoxin level	<0.1 EU per 1 µg of the protein by the LAL method.
Purified by Ni-NTA chromatography. Formulation The protein was lyophilized from a solution containing 1X PBS, pH 8.0. It is recommended to reconstitute the lyophilized protein in sterile H ₂ O to concentration not less than 100 μg/mL and incubate the stock solution for at least 20 min to ensure sufficient re-dissolved. Lyophilized protein should be stored at -20°C. This product is stable for one year upon receipt, when handled and stored as instructed. Upon reconstitution, protein aliquots should be stored at -20°C. Avoid repeated freeze/thaw cycles. Note Please use within one month after protein reconstitution.	Activity	Measure by its ability to enhance IFN gamma secretion in NK-92 cells. The ED $_{50}$ for this effect is <10 ng/mL.
It is recommended to reconstitute the lyophilized protein in sterile H ₂ O to concentration not less than 100 μg/mL and incubate the stock solution for at least 20 min to ensure sufficient re-dissolved. Lyophilized protein should be stored at -20°C. This product is stable for one year upon receipt, when handled and stored as instructed. Upon reconstitution, protein aliquots should be stored at -20°C or -80°C. Avoid repeated freeze/thaw cycles. Note Please use within one month after protein reconstitution.	Purity	·
Reconstitution concentration not less than 100 μg/mL and incubate the stock solution for at least 20 min to ensure sufficient re-dissolved. Lyophilized protein should be stored at -20°C. This product is stable for one year upon receipt, when handled and stored as instructed. Upon reconstitution, protein aliquots should be stored at -20°C or -80°C. Avoid repeated freeze/thaw cycles. Note Please use within one month after protein reconstitution.	Formulation	The protein was lyophilized from a solution containing 1X PBS, pH 8.0.
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	Storage	Lyophilized protein should be stored at -20°C. This product is stable for one year upon receipt, when handled and stored as instructed. Upon reconstitution, protein aliquots should be stored at -20°C or -80°C. Avoid repeated freeze/thaw cycles.
Specification Croyez GMP® recombinant proteins are manufactured in ISO 13495-2016 on	Note	Please use within one month after protein reconstitution.
Orbyez Givir recombinant proteins are manufactured in 150 15465.2016 an	Specification	Croyez GMP® recombinant proteins are manufactured in ISO 13485:2016 and



GMP-certified facility. The processes include:

- Testing and traceability of raw material
- Records of the maintenance and equipment calibration
- Personnel training records
- Batch-to-batch consistency
- Documentation of QA control and process changes
- Manufactured and tested under an ISO 13485:2016 certified quality management system
- Stability monitor of product shelf-life
- 1. Sarra M. et al. (2012) Inflamm Allergy Drug Targets. 11,4: 313-9.
- 2. Leonard WJ, Spolski R. (2005) Nat Rev Immunol. 5,9: 688-98.
- 3. Brandt K. et al. (2007) Cytokine Growth Factor Rev. 18,3-4: 223-32.
- 4. Sim GC, Radvanyi L. (2014) Cytokine Growth Factor Rev. 25,4: 377-90.



SDS-PAGE analysis of Croyez GMP® IL-21, Human

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

Reference