

Contents

1. Description

1.1 Background information

1.2 Applications

2. References

1. Description

Products	Human IL-15, research grade. Recombinant human interleukin 15.						
	<table border="1"> <thead> <tr> <th>Content in µg</th><th>Order no.</th></tr> </thead> <tbody> <tr> <td>10</td><td>130-093-955</td></tr> <tr> <td>25</td><td>130-095-760</td></tr> </tbody> </table>	Content in µg	Order no.	10	130-093-955	25	130-095-760
Content in µg	Order no.						
10	130-093-955						
25	130-095-760						
Biological activity	The ED ₅₀ is ≤0.5 ng/mL corresponding to an activity of ≥2×10 ⁶ U/mg. Note: The ED ₅₀ is determined by proliferation assay using CTLL-2 cells according to Soman <i>et al.</i> The proliferation assay was calibrated with the reference standard for human IL-15 (NIBSC code 95/554) provided by the National Institute for Biological Standards and Control.						
Primary structure	Single, non-glycosylated polypeptide chain (114 amino acid residues).						
Molecular mass	12.8 kDa.						
Source	Produced in <i>E. coli</i> .						
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.						
Stabilizer	Mannitol and trehalose.						
Purity	>95% as determined by SDS-PAGE analysis.						
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.						
Storage	Lyophilized Human IL-15, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.						
Reconstitution	It is recommended to reconstitute lyophilized Human IL-15, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.						

1.1 Background information

IL-15 is a member of the four α-helix bundle cytokine family. It is produced by different cell types, including epithelial cells, monocytes, muscle and placenta cells. IL-15 is a potent lymphoid cell growth factor. It stimulates the proliferation of activated T cells and promotes the generation of cytotoxic T lymphocytes (CTLs). IL-15 also induces the generation, proliferation, and activation of NK cells as well as B cell growth and immunoglobulin production. In addition, IL-15 is important for the maintenance of CD8⁺ memory T cells. For binding and signaling IL-15 uses the unique IL-15 receptor α-chain, but shares the β- and γ-chain of the IL-2 receptor.

1.2 Applications

Human IL-15 can be used for a variety of applications, including:

- Activation and expansion of NK and NKT cells.
- *In vitro* differentiation of NK cells, e.g., from purified CD34⁺ cells.
- *In vitro* T cell expansion, e.g., of naive CD8⁺ T cells, and T cell activation, e.g., of CTLs.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

- Galletti, G. *et al.* (2020) Two subsets of stem-like CD8⁺ memory T cell progenitors with distinct fate commitments in humans. *Nat. Immunol.* 21 (12): 1552–1562.
- Rotolo, A. *et al.* (2018) Enhanced Anti-lymphoma Activity of CAR19-iNKT Cells Underpinned by Dual CD19 and CD1d Targeting. *Cancer Cell* 34 (4): 596–610.
- Formenti, S. C. *et al.* (2018) Radiotherapy Induces Responses of Lung Cancer to CTLA-4 Blockade. *Nat Med* 24 (12): 1845–1851.
- Arcangeli, S. *et al.* (2020) Next-Generation Manufacturing Protocols Enriching T SCM CAR T Cells Can Overcome Disease-Specific T Cell Defects in Cancer Patients. *Front Immunol* 11: 1217.
- Hoerster, K. *et al.* (2021) HLA Class I Knockout Converts Allogeneic Primary NK Cells Into Suitable Effectors for “Off-the-Shelf” Immunotherapy. *Front Immunol* 11: 586168.
- Nicolas-Boluda, A. *et al.* (2021) Tumor stiffening reversion through collagen crosslinking inhibition improves T cell migration and anti-PD-1 treatment. *Elife* 10: e58688.
- Alzubi, J. *et al.* (2020) PSMA-Directed CAR T Cells Combined with Low-Dose Docetaxel Treatment Induce Tumor Regression in a Prostate Cancer Xenograft Model. *Mol. Ther. Oncolytics* 18: 226–235.
- Olden, B. R. *et al.* (2019) Cell-Templated Silica Microparticles with Supported Lipid Bilayers as Artificial Antigen-Presenting Cells for T Cell Activation. *Adv Healthc Mater.* 8 (2): e1801188.
- Alzubi, J. *et al.* (2020) Automated generation of gene-edited CAR T cells at clinical scale. *Mol Ther Methods Clin Dev.* 20: 379–388.
- Soman, G. *et al.* (2009) MTS dye based colorimetric CTLL-2 cell proliferation assay for product release and stability monitoring of interleukin-15: assay qualification, standardization and statistical analysis. *J. Immunol. Methods* 348: 83–94.

11. Dietz, L. *et al.* (2010) Tracking human contact allergens: from mass spectrometric identification of peptide-bound reactive small chemicals to chemical-specific naive human T-cell priming. *Toxicol. Sci.* 117 (2): 336–347.
12. Fuchs, S. *et al.* (2014) Patients with T^{low} NK⁺ IL-2 receptor γ chain deficiency have differentially-impaired cytokine signaling resulting in severe combined immunodeficiency. *Eur. J. Immunol.* 44 (10): 3129–3140.
13. Alvarez-Breckenridge, C. A. *et al.* (2012) The histone deacetylase inhibitor valproic acid lessens NK cell action against oncolytic virus-infected glioblastoma cells by inhibition of STAT5/T-BET signaling and generation of gamma interferon. *J. Virol.* 86 (8): 4566–4577.
14. Gordy, L. E. *et al.* (2011) IL-15 regulates homeostasis and terminal maturation of NKT cells. *J. Immunol.* 187 (12): 6335–6345.
15. Juelke, K. *et al.* (2010) CD62L expression identifies a unique subset of polyfunctional CD56^{dim} NK cells. *Blood* 116 (8): 1299–1307.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

Legal notices

Limited product warranty

Miltenyi Biotec B.V. & Co. KG and/or its affiliate(s) warrant this product to be free from material defects in workmanship and materials and to conform substantially with Miltenyi Biotec's published specifications for the product at the time of order, under normal use and conditions in accordance with its applicable documentation, for a period beginning on the date of delivery of the product by Miltenyi Biotec or its authorized distributor and ending on the expiration date of the product's applicable shelf life stated on the product label, packaging or documentation (as applicable) or, in the absence thereof, ONE (1) YEAR from date of delivery ("Product Warranty"). Miltenyi Biotec's Product Warranty is provided subject to the warranty terms as set forth in Miltenyi Biotec's General Terms and Conditions for the Sale of Products and Services available on Miltenyi Biotec's website at www.miltenyibiotec.com, as in effect at the time of order ("Product Warranty"). Additional terms may apply. BY USE OF THIS PRODUCT, THE CUSTOMER AGREES TO BE BOUND BY THESE TERMS.

THE CUSTOMER IS SOLELY RESPONSIBLE FOR DETERMINING IF A PRODUCT IS SUITABLE FOR CUSTOMER'S PARTICULAR PURPOSE AND APPLICATION METHODS.

Technical information

The technical information, data, protocols, and other statements provided by Miltenyi Biotec in this document are based on information, tests, or experience which Miltenyi Biotec believes to be reliable, but the accuracy or completeness of such information is not guaranteed. Such technical information and data are intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. Miltenyi Biotec shall not be liable for any technical or editorial errors or omissions contained herein.

All information and specifications are subject to change without prior notice. Please contact Miltenyi Biotec Technical Support or visit www.miltenyibiotec.com for the most up-to-date information on Miltenyi Biotec products.

Licenses

This product and/or its use may be covered by one or more pending or issued patents and/or may have certain limitations. Certain uses may be excluded by separate terms and conditions. Please contact your local Miltenyi Biotec representative or visit Miltenyi Biotec's website at www.miltenyibiotec.com for more information.

The purchase of this product conveys to the customer the non-transferable right to use the purchased amount of the product in research conducted by the customer (whether the customer is an academic or for-profit entity). This product may not be further sold. Additional terms and conditions (including the terms of a Limited Use Label License) may apply.

CUSTOMER'S USE OF THIS PRODUCT MAY REQUIRE ADDITIONAL LICENSES DEPENDING ON THE SPECIFIC APPLICATION. THE CUSTOMER IS SOLELY RESPONSIBLE FOR DETERMINING FOR ITSELF WHETHER IT HAS ALL APPROPRIATE LICENSES IN PLACE. Miltenyi Biotec provides no warranty that customer's use of this product does not and will not infringe intellectual property rights owned by a third party. BY USE OF THIS PRODUCT, THE CUSTOMER AGREES TO BE BOUND BY THESE TERMS.

Trademarks

The Miltenyi Biotec logo is a registered trademark or trademark of Miltenyi Biotec and/or its affiliates in various countries worldwide.

Copyright © 2022 Miltenyi Biotec and/or its affiliates. All rights reserved.