ProDots® Recombinant Human IL-7 GMP

Catalog Number: PRD207-GMP

DESCRIPTION

Source	*E. coli*-derived Asp26-His177, with an N-terminal Met Accession # P13232 Produced using non-animal reagents in an animal-free laboratory. Manufactured and tested under cGMP guidelines.
N-terminal Sequence Analysis	Met-Asp-(Cys)-Asp-Ile-Glu-Gly-Lys-Asp-Gly
Predicted Molecular Mass	17 kDa

SPECIFICATIONS

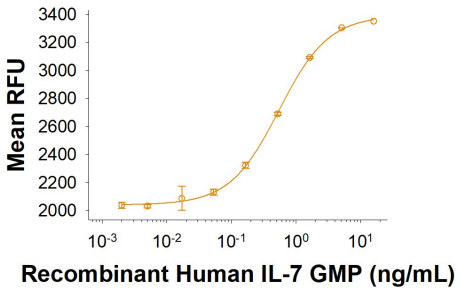
Activity	Measured in a cell proliferation assay using PHA-activated human peripheral blood lymphocytes (PBL). Yokota, T. *et al.* (1986) Proc. Natl. Acad. Sci. USA **83**:5894. The ED_{50} for this effect is 0.1-0.5 ng/mL. The specific activity of Recombinant Human IL-7 is approximately 4.4 x 10^5 IU/µg, which is calibrated against human IL-7 WHO Standard (NIBSC code: 90/530).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE with silver staining, under reducing conditions.
Host Cell Protein	< 0.5 ng per µg of protein when tested by ELISA.
Mycoplasma	Negative when tested in a ribosomal RNA hybridization assay.
Host Cell DNA	< 0.0015 ng per µg of protein when tested by PCR.
Formulation	Lyophilized from an phosphate buffered saline-based formulation using proprietary excipients. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute with cell culture media immediately prior to use.
Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Store material as supplied, unopened, and unreconstituted at 2-8 °C until use.** Stability is a minimum of 8 weeks when stored at 2 - 8 °C as supplied. Refer to lot specific COA for the Use by Date. **For GMP ProDots in bag format:** The foil pouch is used for shipping and storage only and is not terminally sterilized. GMP ProDots within the weldable bag are prepared under GMP-controlled conditions and protein content is tested to USP <71> guidelines.

DATA

Bioactivity



GMP-grade Prodots® Recombinant Human IL-7 stimulates proliferation of PHA-activated human peripheral blood lymphocytes. The ED_{50} for this effect is 0.1-0.5 ng/mL.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

ProDots® Recombinant Human IL-7 GMP

Catalog Number: PRD207-GMP

BACKGROUND

IL-7 (interleukin-7) is a 25 kDa cytokine of the hemopoietin family that plays important roles in lymphocyte differentiation, proliferation, and survival (1-4). Human IL-7 cDNA encodes 177 amino acids (aa) that include a 25 aa signal peptide (3). Human IL-7 shares approximately 60-63% aa sequence identity with mouse, rat, canine and feline IL-7, and 72-76% with equine, bovine, ovine, porcine, feline and canine IL-7. Human and mouse IL-7 exhibit cross-species activity (2, 3). IL-7 is produced by a wide variety of cells in primary and secondary lymphoid tissues, including stromal epithelial cells of the thymus, bone marrow, and intestines (1, 2, 5). Circulating IL-7 is limiting in healthy animals, but increases during lymphopenia (1, 6). IL-7 signals through a complex of the IL-7 Receptor alpha subunit (IL-7 Rα, also known as CD127) with the common γ chain (γ_c) (1). The γ_c is also a subunit of the receptors for IL-2, -4, -9, -15, and -21 (1). IL-7 Rα is expressed on double negative ($CD4^-CD8^-$) and $CD4^+$ or $CD8^+$ single positive naïve and memory T cells, but undergoes IL-7-mediated down-regulation and shedding during antigen-driven T cell proliferation, and is absent on regulatory T cells (1, 2, 6-11). IL-7 contributes to the maintenance of all naïve and memory T cells, mainly by promoting expression of the anti-apoptotic protein Bcl-2 (9-11). It is required for optimal T cell-dendritic cell interaction (6). IL-7 is expressed early in B cell development prior to the appearance of surface IgM (1, 5, 9). In mouse, IL-7 activation of IL-7 Rα is critical for both T cell and B cell lineage development, while in humans, it is required for T cell but not for B cell development (4, 9, 12, 13). However, IL-7 functions in both mouse and human pro-B cells to suppress premature Ig light chain recombination during proliferative growth (14, 15).

References:

1. Sasson, S.C. *et al.* (2006) Curr. Drug Targets **7**:1571.
2. Barata, J.T. *et al.* (2006) Exp. Hematol. **34**:1133.
3. Goodwin, R.G. *et al.* (1990) Proc. Natl. Acad. Sci. USA **86**:302.
4. Namen, A.E. *et al.* (1988) Nature **333**:571.
5. Shalapour, S. *et al.* (2012) PLoS ONE **7**: e31939.
6. Saini, M. *et al.* (2009) Blood **113**:5793.
7. Park, J.H. *et al.* (2004) Immunity **21**:289.
8. Vranjkovic, A. *et al.* (2007) Int. Immunol. **19**:1329.
9. Sudo, T. *et al.* (1993) Proc. Natl. Acad. Sci. **90**:9125.
10. Seddon, B. *et al.* (2003) Nat. Immunol. **4**:680.
11. Schluns, K.S. *et al.* (2000) Nat. Immunol. **5**:426.
12. Peschon, J.J. *et al.* (1994) J. Exp. Med. **180**:1955.
13. Pribyl, J.A. and T.W. LeBien (1996) Proc. Natl. Acad. Sci. **93**:10348.
14. Johnson, K. *et al.* (2012) J. Immunol. **188**:6084.
15. Nodland, S.E. *et al.* (2011) Blood **118**:2116.

PRODUCT SPECIFIC NOTICES

SDS-PAGE Purity, Host Cell DNA, and Host Cell Protein testing were completed on protein prior to lyophilization.
The End User is aware that R&D Systems, Inc. sells GMP products for preclinical or clinical *ex vivo* use and not for *in vivo* use. The End User Terms of Use of Product may be found at: RnDSystems.com/legal-information.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449