

## DESCRIPTION

<b>Source</b>	<i>E. coli</i> -derived Ala21-Thr153, with an N-terminal Met Accession # P60568.1 Produced using non-animal reagents in an animal-free laboratory. Manufactured and tested under cGMP guidelines.
<b>N-terminal Sequence Analysis</b>	Met-Ala <sub>21</sub> -Pro-Thr-Ser-Ser-Ser-Thr-Lys-Lys
<b>Predicted Molecular Mass</b>	15.5 kDa

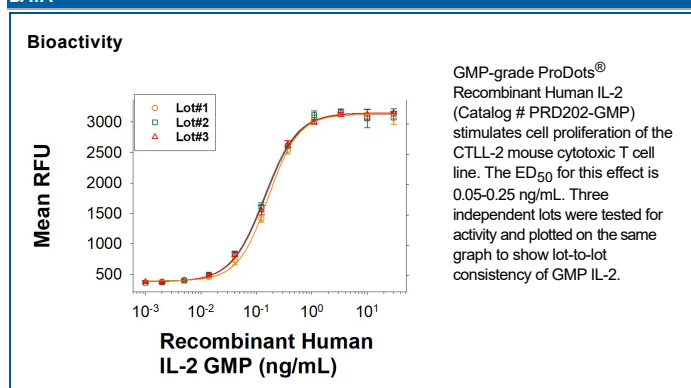
## SPECIFICATIONS

<b>Activity</b>	Measured in a cell proliferation assay using CTLL-2 mouse cytotoxic T cells. Gearing, A.J.H. and C.B. Bird (1987) in Lymphokines and Interferons, A Practical Approach. Clemens, M.J. <i>et al.</i> (eds): IRL Press. 295. The ED <sub>50</sub> for this effect is 0.05-0.25 ng/mL.  The specific activity of ProDots Recombinant Human IL-2 GMP is >5.0 x 10 <sup>6</sup> IU/mg, which is calibrated against the human IL-2 WHO International Standard (NIBSC code: 86/500).
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>97%, by SDS-PAGE with silver staining, under reducing conditions.
<b>Host Cell Protein</b>	<0.5 ng per µg of protein when tested by ELISA.
<b>Mycoplasma</b>	Negative when tested in a ribosomal RNA hybridization assay.
<b>Host Cell DNA</b>	<0.0015 ng per µg of protein when tested by PCR.
<b>Formulation</b>	Lyophilized from an acetonitrile-based formulation using proprietary excipients. See Certificate of Analysis for details.

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute immediately prior to use with up to 25 mL of cell culture media.
<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Store material as supplied, unopened, and unreconstituted at 2-8 °C until use.</b> 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.  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



## BACKGROUND

Interleukin-2 (IL-2) is a O-glycosylated, four  $\alpha$ -helix bundle cytokine that has potent stimulatory activity for antigen-activated T cells. It is expressed by CD4<sup>+</sup> and CD8<sup>+</sup> T cells,  $\gamma\delta$  T cells, B cells, dendritic cells, and eosinophils (1-3). Mature human IL-2 shares 56% and 66% aa sequence identity with mouse and rat IL-2, respectively. Human and mouse IL-2 exhibit cross-species activity (4). The receptor for IL-2 consists of three subunits that are present on the cell surface in varying preformed complexes (5-7). The 55 kDa IL-2 R $\alpha$  is specific for IL-2 and binds with low affinity. The 75 kDa IL-2 R $\beta$ , which is also a component of the IL-15 receptor, binds IL-2 with intermediate affinity. The 64 kDa common gamma chain  $\gamma$ c/IL-2 R $\gamma$ , which is shared with the receptors for IL-4, -7, -9, -15, and -21, does not independently interact with IL-2. Upon ligand binding, signal transduction is performed by both IL-2 R $\beta$  and  $\gamma$ c. IL-2 is best known for its autocrine and paracrine activity on T cells. It drives resting T cells to proliferate and induces IL-2 and IL-2 R $\alpha$  synthesis (1, 2). It contributes to T cell homeostasis by promoting the Fas-induced death of naïve CD4<sup>+</sup> T cells but not activated CD4<sup>+</sup> memory lymphocytes (8). IL-2 plays a central role in the expansion and maintenance of regulatory T cells, although it inhibits the development of Th17 polarized cells (9-11). Thus, IL-2 may be a key cytokine in the natural suppression of autoimmunity (12, 13).

## References:

1. Ma, A. *et al.* (2006) *Annu. Rev. Immunol.* **24**:657.
2. Gaffen, S.L. and K.D. Liu (2004) *Cytokine* **28**:109.
3. Taniguchi, T. *et al.* (1983) *Nature* **302**:305.
4. Mosmann, T.R. *et al.* (1987) *J. Immunol.* **138**:1813.
5. Liparoto, S.F. *et al.* (2002) *Biochemistry* **41**:2543.
6. Wang, X. *et al.* (2005) *Science* **310**:1159.
7. Bodnar, A. *et al.* (2008) *Immunol. Lett.* **116**:117.
8. Jaleco, S. *et al.* (2003) *J. Immunol.* **171**:61.
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11. Kryczek, I. *et al.* (2007) *J. Immunol.* **178**:6730.
12. Afzali, B. *et al.* (2007) *Clin. Exp. Immunol.* **148**:32.
13. Fehervari, Z. *et al.* (2006) *Trends Immunol.* **27**:109.

## PRODUCT SPECIFIC NOTICES

The GMP ProDot bag(s) should be used after proper inspection. Assess the bags after media is added to the bag either through the weldable port or needless valve. Inspect the bag to ensure complete dissolution of the GMP ProDot, and visually inspect seals and corners for a complete seal.

GMP ProDots are fragile. Please handle with care. If breakage of a ProDot is observed, there is no integrity lost, and can be used as indicated.

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](http://RnDSystems.com/legal-information).