

**DESCRIPTION**

<b>Source</b>	<i>E. coli</i> -derived Glu26-Ile154, with an N-terminal Met Accession # Q544C8
<b>N-terminal Sequence Analysis</b>	Glu26
<b>Predicted Molecular Mass</b>	15 kDa

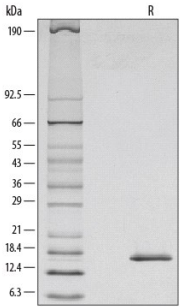
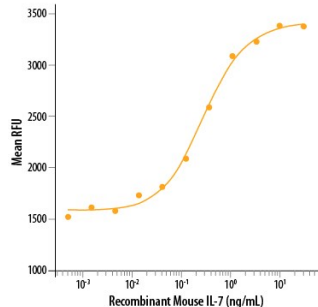
**SPECIFICATIONS**

<b>Activity</b>	Measured in a cell proliferation assay using PHA-activated human peripheral blood lymphocytes (PBL). Yokota, T. <i>et al.</i> (1986) Proc. Natl. Acad. Sci. USA <b>83</b> :5894. The ED <sub>50</sub> for this effect is typically 0.15-0.3 ng/mL.
<b>Endotoxin Level</b>	<0.01 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 50 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**DATA**

<p><b>SDS-PAGE</b></p>  <p>1 µg/lane of Recombinant Mouse IL-7 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 17 kDa.</p>	<p><b>Bioactivity</b></p>  <p>Recombinant Mouse IL-7 (Catalog # 407-ML) stimulates cell proliferation of PHA-activated human peripheral blood lymphocytes. The ED<sub>50</sub> for this effect is typically 0.15-0.3 ng/mL.</p>
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**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). Mouse IL-7 cDNA encodes 154 amino acids (aa) that include a 25 aa signal peptide (4). Mouse IL-7 shares approximately 88% aa sequence identity with rat IL-7 and 58-60% with human, 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 R $\alpha$ , also known as CD127) with the common  $\gamma$  chain ( $\gamma_c$ ) (1). The  $\gamma_c$  is also a subunit of the receptors for IL-2, -4, -9, -15, and -21 (1). IL-7 R $\alpha$  is expressed on double negative (CD4<sup>-</sup>CD8<sup>-</sup>) and CD4<sup>+</sup> or CD8<sup>+</sup> 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 R $\alpha$  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:**

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