Recombinant Human IL-15

Catalog Number: 247-IL

DESCRIPTION

Source	*E. coli*-derived Asn49-Ser162 Accession # P40933
N-terminal Sequence Analysis	Asn49
Predicted Molecular Mass	12.5 kDa

SPECIFICATIONS

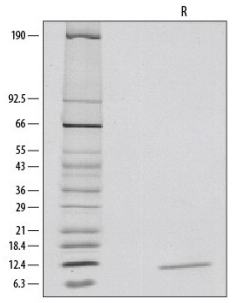
Activity	Measured in a cell proliferation assay using MO7e human megakaryocytic leukemic cells. The ED_{50} for this effect is typically 0.3-2.6 ng/mL. The specific activity of Recombinant Human IL-15 is approximately 4.5 x 10^5 U/µg, which is calibrated against recombinant human IL-15 WHO International Standard (NIBSC code: 95/554).
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	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

Reconstitution	Reconstitute at 50 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

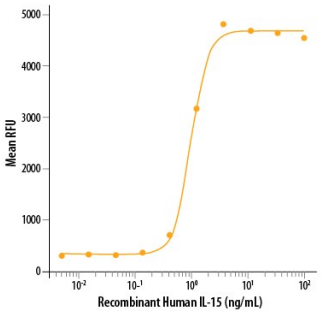
DATA

SDS-PAGE



1 µg/lane of Recombinant Human IL-15 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 12 kDa.

Bioactivity



Recombinant Human IL-15 (Catalog # 247-IL) stimulates cell proliferation in the MO7e human megakaryocytic leukemic cell line. The ED_{50} for this effect is typically 0.3-2.6 ng/mL.

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BACKGROUND

Interleukin 15 (IL-15) is a widely expressed 14 kDa cytokine that is structurally and functionally related to IL-2 and plays an important role in many immunological diseases (1, 2). Mature human IL-15 shares 70% amino acid sequence identity with mouse and rat IL-15. Alternative splicing generates isoforms of IL-15 with either a long or short signal peptide (LSP or SSP), and the SSP isoform is retained intracellularly (3). IL-15 binds with high affinity to IL-15 Rα (4). It binds with lower affinity to a complex of IL-2 Rβ and the common gamma chain (γc) which are also subunits of the IL-2 receptor complex (5). IL-15 associates with IL-15 Rα in the endoplasmic reticulum, and this complex is expressed on the cell surface (6). The dominant mechanism of IL-15 action is known as transpresentation in which IL-15 and IL-15 Rα are coordinately expressed on the surface of one cell and interact with complexes of IL-2 Rβ/γc on adjacent cells (7). This enables cells to respond to IL-15 even if they do not express IL-15 Rα (6). In human and mouse, soluble IL-15-binding forms of IL-15 Rα can be generated by proteolytic shedding and bind up nearly all the IL-15 in circulation (8-10). Soluble IL-15 Rα functions as an inhibitor that limits IL-15 action (4, 9). Ligation of membrane-associated IL-15/IL-15 Rα complexes also induces reverse signaling that promotes activation of the IL-15/IL-15 Rα expressing cells (11). IL-15 induces or enhances the differentiation, maintenance, or activation of multiple T cell subsets including NK, NKT, Th17, Treg, and $CD8^+$ memory cells (12-16). An important component of these functions is the ability of IL-15 to induce dendritic cell differentiation and inflammatory activation (11, 14). IL-15 exhibits anti-tumor activity independent of its actions on NK cells or $CD8^+$ T cells (17). It also inhibits the deposition of lipid in adipocytes, and its circulating levels are decreased in obesity (18).

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