

**DESCRIPTION**

<b>Source</b>	<i>E. coli</i> -derived human IL-15 protein Asn49-Ser162 Accession # P40933.1 Produced using non-animal reagents in an animal-free laboratory. Manufactured and tested under cGMP guidelines.
<b>N-terminal Sequence Analysis</b>	Asn49-Trp-Val-Asn-Val-Ile-Ser-Asp-Leu-Lys
<b>Predicted Molecular Mass</b>	13 kDa

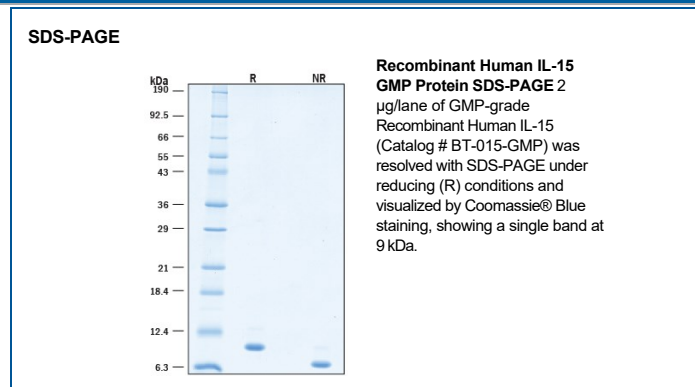
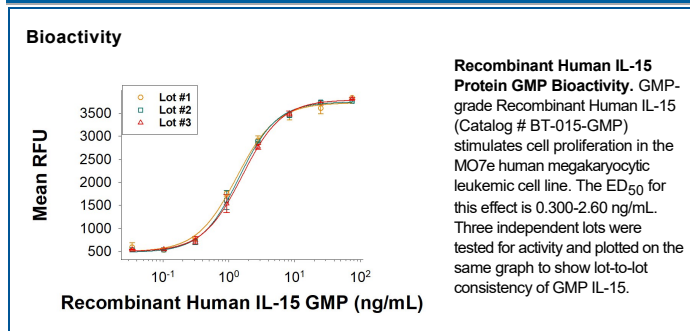
**SPECIFICATIONS**

<b>SDS-PAGE</b>	9 kDa, under reducing conditions
<b>Activity</b>	Measured in a cell proliferation assay using MO7e human megakaryocytic leukemic cells. The ED <sub>50</sub> for this effect is 0.300-2.60 ng/mL. The specific activity of recombinant human IL-15 is >2.00 x 10 <sup>8</sup> units/mg, which is calibrated against the human IL-15 reference standard (NIBSC code: 95/554).
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
<b>Mass Spectrometry</b>	The molecular weight by mass spectrometry is 12761 Da ± 5 Da.
<b>Host Cell Protein</b>	< 1.00 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>	< 0.0100 ng per µg of protein when tested by PCR.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 100-500 µg/mL in PBS.
<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>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• A minimum of 12 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 3 months, ≤ -20 °C under sterile conditions after reconstitution.</li> </ul>

**DATA**



**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 R $\alpha$  (4). It binds with lower affinity to a complex of IL-2 R $\beta$  and the common gamma chain ( $\gamma$ c) which are also subunits of the IL-2 receptor complex (5). IL-15 associates with IL-15 R $\alpha$  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 R $\alpha$  are coordinately expressed on the surface of one cell and interact with complexes of IL-2 R $\beta$ / $\gamma$ c on adjacent cells (7). This enables cells to respond to IL-15 even if they do not express IL-15 R $\alpha$  (6). In human and mouse, soluble IL-15-binding forms of IL-15 R $\alpha$  can be generated by proteolytic shedding and bind up nearly all the IL-15 in circulation (8-10). Soluble IL-15 R $\alpha$  functions as an inhibitor that limits IL-15 action (4, 9). Ligation of membrane-associated IL-15/IL-15 R $\alpha$  complexes also induces reverse signaling that promotes activation of the IL-15/IL-15 R $\alpha$  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).

**References:**

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- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial testing according to USP <71>
- Host Cell Protein testing performed by ELISA
- Mycoplasma testing by ribosomal RNA hybridization assay

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