

Recombinant Human Interleukin-15 (rHuIL-15)

Acnovia Data Sheet

Catalog#/Size:	AC52385/100 µg.
Source:	<i>Escherichia coli</i> .
Molecular Weight:	Approximately 12.9 kDa, a single non-glycosylated polypeptide chain containing 115 amino acids.
Description :	Accession # P40933.1, Asn49-Ser162, with an N terminal Met.
SDS-PAGE:	9 kDa, reducing conditions.
Purity:	>95 %, as determined by SDS-PAGE, under reducing non-reducing conditions, visualized by coomassie staining.
Endotoxin:	Less than 0.01 EU/µg of rHuIL-15 as determined by kinetic Limulus Amoebocyte Lysate (LAL) assay.
Biological Activity:	Recombinant human IL-15 bioactivity is measured in a cell proliferation assay using Mo7e cells, the EC50 for this effect is 3.500 to 4.556 ng/mL.
Physical Appearance:	Sterile Filtered White lyophilized (freeze-dried) powder.
Formulation:	Lyophilized from a 0.2 µm filtered concentrated solution in 20 mM PBS, pH 7.5 without carrier protein or preservatives.
Reconstitution:	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute to a concentration of 0.1-1.0 mg/mL in sterile distilled H₂O . Stock solutions should be apportioned into working aliquots and stored at -20 °C to -70 °C. Further dilutions should be made in appropriate buffered solutions. Do not reconstitute in cell culture media directly.
Shipping:	The product is shipped at 2 °C to 8 °C. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage:	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. A minimum of 12 months from date of shipping when stored at -20 °C to -70 °C as supplied. 4 weeks at 2 °C to 8 °C under sterile conditions after reconstitution. 4 months at -20 °C to -70 °C under sterile conditions after reconstitution.
Usage:	Acnovia rHuIL-15 product can be used for a variety of ex vivo cell culture applications such as research or further manufacturing.
Quality statement:	No animal- or human-derived materials were used for the manufacture of this product, unless otherwise stated in the respective Certificate of Origin.

Background:

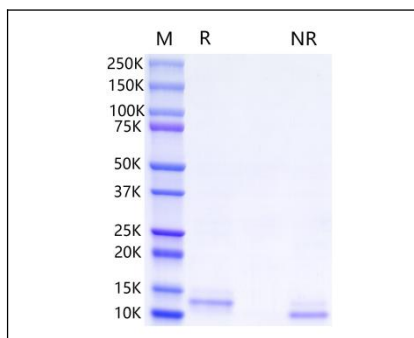
Interleukin 15 (IL-15) is a widely expressed pro-inflammatory cytokine that regulates T and natural killer cell activation and proliferation. Together with IL-2, IL-4, IL-7, and IL-9, IL-15 belongs to the four- α -helix protein which is a 14-15 kDa protein that shares many biological activities with IL-2. IL-15 signals through a receptor complex composed of the IL-2/IL-15 receptor β (IL-15R β) (CD122) subunit and the common gamma chain (γ C) (CD132) receptor subunit, and thus negatively regulate each other's activity. The number of CD8⁺ memory cells is shown to be controlled by a balance between IL-15 and IL-2. IL-15 drives homeostatic (lymphopenic) division of human CD8⁺ and CD4⁺ memory T cells, and NK cells. IL-15 has anti-apoptotic effect on CD8⁺ memory T cells, and on B cells in the germinal centers.

IL-15 is secreted by monocytes, macrophages, Dendritic cells, follicular dendritic cells, stromal cells, T cells, and some cancer cells (prostate, ovary). Dendritic cells can be induced to secrete IL-15 in vitro by engagement of CD40. And the IL-15 essential for NK cell development is produced by bone marrow stromal cells.

Application References:

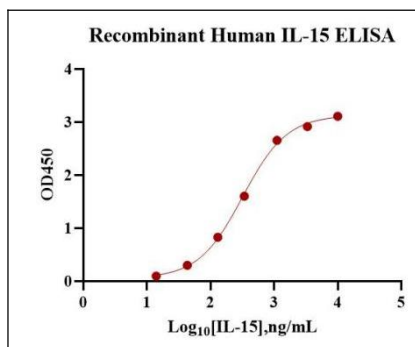
1. Patidar M, Yadav N, Dalai SK. Interleukin 15: A key cytokine for immunotherapy. Cytokine Growth Factor Rev. 2016 Oct;31:49-59.
2. www.ncbi.nlm.nih.gov/gene/3600#
3. Kryczek, I. et al. (2007) J. Immunol. 178:6730.
4. Thomas A. Waldmann, Interleukin-15, Reference Module in Neuroscience and Biobehavioral Psychology, Elsevier, 2017.
5. Joseph Lorenzo, Chapter 9 - The Effects of Immune Cell Products (Cytokines and Hematopoietic Cell Growth Factors) on Bone Cells, Academic Press.

DATA:



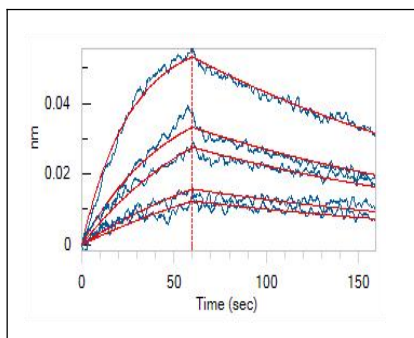
SDS-PAGE

Recombinant Human IL-15 Protein SDS-PAGE 1 μ g/lane of Recombinant Human IL-15 (Catalog # AC52385) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions visualized by coomassie staining showing a single band at 9 kDa.



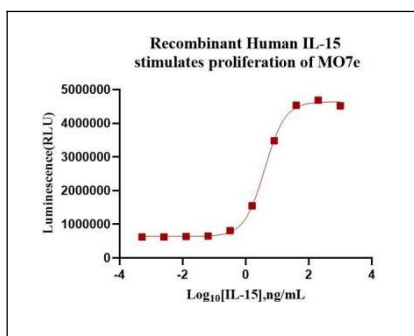
Bioactivity-ELISA

Immobilized Recombinant Human IL-15 (Catalog # AC52385) at 0.2 μ g/well can bind Human IL-15 R alpha with a linear range of 254.2 to 402.3 ng/mL.



Bioactivity-BLI

Loaded Human IL-15 R alpha, can bind Recombinant Human IL-15 (Catalog # AC52385) with an affinity constant of 2.45 nM as determined in BLI assay (Octet® R8).



Bioactivity-Cell based assay

Recombinant Human IL-15 (Catalog # AC52385) stimulates proliferation of Mo7e cells, the EC₅₀ for this effect is 3.500 to 4.556 ng/mL.