Recombinant Human Interleukin-4 (rHuIL-4)

Acnovia Data Sheet

Catalog# / Size:	AC52383/100 µg.
Source:	*Escherichiacoli.*
Molecular Weight:	Approximately 15 kDa, a single polypeptide chain containing 130 amino acids.
Description :	Accession#P05112.1, His25-Ser153, with an N terminal Met.
SDS- PAGE:	15 kDa, reducing conditions
Purity:	> 95 %, as determined by SDS-PAGE, under reducing non-reducing conditions, visualized by c oomassie staining.
Endotoxin:	Less than 0.01 EU/µg of rHuIL-4 as determined by kinetic Limulus Amoebocyte Lysate (LAL) assay.
Biological Activity:	Recombinant human IL-4 bioactivity is measured in a cell proliferation assay using TF-1 human erythroleukemic cells, the EC50 for this effect is 0.00993-0.0301 ng/mL.
Physical Appearance:	Sterile Filtered White lyophilized (freeze-dried) powder.
Formulation:	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose.
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 H_2O. Stock solutions should be apportioned into working aliquots and stored at-20 ℃ to -70 ℃. 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 ℃ to -70 ℃ as supplied. Refer to lot specific COA for the use by date. 4 weeks at 2 ℃ to 8 ℃ under sterile conditions after reconstitution. 4 months at -20 ℃ to -70 ℃ under sterile conditions after reconstitution.
Usage:	Acnovia rHuIL-4 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:

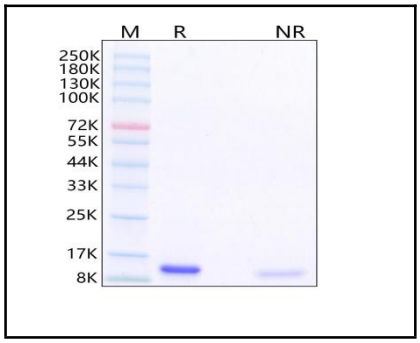
Interleukin-4 (IL-4) is a four-α-helical bundle type I cytokine with broad pleiotropic actions on multiple lineages that produced by activated T cells. This cytokine is a multifunctional cytokine with B-cell stimulatory and Th2-promoting properties. IL-4 can rescue B-cells from apoptosis, enhancing their survival. A T-cell suppressor role for this cytokine has also been suggested. In T-cells, IL-4 induces the differentiation of native CD4 T cells into Th2 cells, in B cells, IL-4 drives the immunoglobulin (Ig) class switch to IgG1 and IgE, and in macrophages, IL-4 induce alternative macrophage activation. Moreover, as a type 2 cytokine, IL-4 mediates and regulates a variety of human host responses such as allergic, anti-parasitic, wound healing, and acute inflammation. IL-4 binds to two different receptors; Type I receptors, heterodimers consisting of IL-4Rα chains and common γ chains, γc, and type II receptors, heterodimers of IL-4Rα and IL-13Rα. Naturally occurring IL-4 has a molecular mass of 12-20 kDa. Acnovia recombinant human IL-4 is a 15 kDa protein containing 119 amino acid residues. Human and mouse IL-4 has 50% amino acid sequence homology, but their biological role is species-specific.

Application References:

1.Chomarat P, Banchereau J. An update on interleukin-4 and its receptor. Eur Cytokine Netw. 1997 Dec;8(4):333-44.

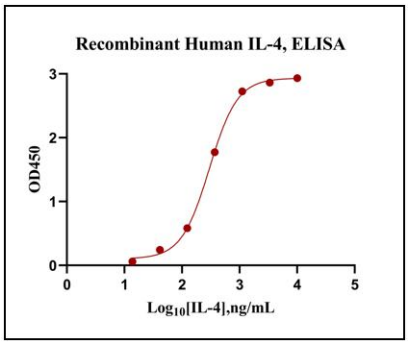
2.Violeta Rus, Charles S. Via, Chapter 12 - Cytokines in Systemic Lupus Erythematosus, Editor(s): George C. Tsokos, Caroline Gordon, Josef S. Smolen, Systemic Lupus Erythematosus, Mosby, 2007, Pages 109-120

DATA:



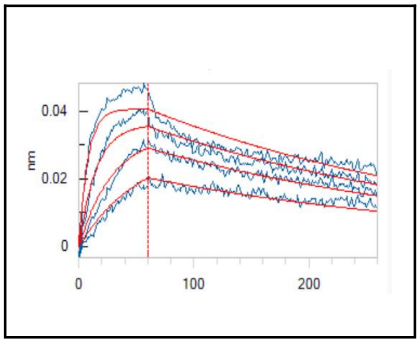
SDS- PAGE

Recombinant Human IL-4 Protein SDS-PAGE 1μg/mL lane of Recombinant Human IL-4 Protein(Catalog #AC52383) was resolved with SDS- PAGE under reducing (R) and non-reducing (NR) conditions visualized by coomassie staining showing a single band at 17 kDa.



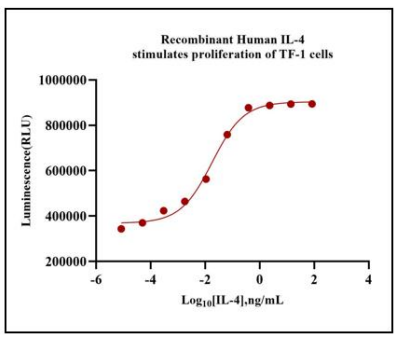
Bioactivity- ELISA

Immobilized recombinant human IL-4 (Catalog #AC52383) at 0.2μg/well can bind human IL-4 R alpha with a linear range of 275.7 to 322.7 ng/mL.



Bioactivity- BLI

Loaded Human IL-4 R alpha, can bind Recombinant Human IL-4 (Catalog #AC52383) with an affinity constant of 33.01nM as determined in BLI assay (Octet® R8).



Bioactivity– Cell based assay

Recombinant Human IL-4 (Catalog #AC52383) stimulates proliferation of TF-1 human erythroleukemic cells . The EC50 for this effect is 0.00993 to 0.0301 ng/mL.