Animal-Free IL-4 Protein, Human (His)

Cat. No.:	HY-P700130AF
Synonyms:	Interleukin-4; IL-4; B-Cell Stimulatory Factor 1; BSF-1; Binetrakin; Lymphocyte Stimulatory Factor 1; Pitrakinra; IL4
Species:	Human
Source:	E. coli
Accession:	P05112 (H25-S153)
Gene ID:	3565
Molecular Weight:	Approximately 15.9 kDa

PROPERTIES

AA Sequence	M H K C D I T L Q E I I K T L N S L T E Q K T L C T E L T V T D I F A A S K N T T E K E T F C R A A T V L R Q F Y S H H E K D T R C L G A T A Q Q F H R H K Q L I R F L K R L D R N L W G L A G L N S C P V K E A N Q S T L E N F L E R L K T I M R E K Y S K C S S
Biological Activity	Measure by its ability to induce TF-1 cells proliferation. The ED_{50} for this effect is <0.2 ng/mL. The specific activity of recombinant human IL-4 is approximately >2.8 x 10^7 IU/mg
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS, pH 8.0.
Endotoxin Level	<0.1 EU per 1 μg of the protein by the LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The cytokine IL-4, primarily secreted by mast cells, T-cells, eosinophils, and basophils, plays a crucial role in regulating antibody production, hematopoiesis, inflammation, and the development of effector T-cell responses. IL-4 induces the expression of class II MHC molecules on resting B-cells and enhances both the secretion and cell surface expression of IgE and IgG1, contributing to immune responses. Additionally, IL-4 regulates the expression of the low-affinity Fc receptor for IgE (CD23) on both lymphocytes and monocytes and positively regulates IL31RA expression in macrophages. Furthermore, IL-4 stimulates autophagy in dendritic cells by interfering with mTORC1 signaling and inducing RUFY4. Beyond its

immunological functions, IL-4 plays a critical role in higher functions of the normal brain, such as memory and learning. Upon binding to its receptor, IL-4R, IL-4 initiates signaling through two types of receptor complexes, type 1 mainly on hematopoietic cells and type 2 on nonhematopoietic cells, activating JAK3 and to a lesser extent JAK1 phosphorylation, leading to the activation of the signal transducer and activator of transcription 6/STAT6. IL-4 interacts with both IL-4R and IL13RA1 to mediate its diverse physiological effects.

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