

## GMP IL-4 Protein, Human

<b>Cat. No.:</b>	HY-P78549
<b>Synonyms:</b>	Interleukin-4; IL-4; B-Cell Stimulatory Factor 1; BSF-1; Binetrakin; Lymphocyte Stimulatory Factor 1; Pitrakinra; IL4
<b>Species:</b>	Human
<b>Source:</b>	E. coli
<b>Accession:</b>	P05112 (H25-S153)
<b>Gene ID:</b>	3565
<b>Molecular Weight:</b>	Approximately 15.6 kDa

### PROPERTIES

<b>AA Sequence</b>	<p>           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         </p>
<b>Biological Activity</b>	Measured in a cell proliferation assay using TF $\beta$ 1 human erythroleukemic cells and the ED <sub>50</sub> for this effect is 0.05-0.2 ng/mL.
<b>Appearance</b>	Solution.
<b>Formulation</b>	Supplied as a 0.22 $\mu$ m filtered solution of 50 mM Tris, 300 mM NaCl, pH 7.0.
<b>Endotoxin Level</b>	<0.01 EU/ $\mu$ g, determined by LAL method.
<b>Reconstitution</b>	N/A.
<b>Storage &amp; Stability</b>	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
<b>Shipping</b>	Shipping with dry ice.

### DESCRIPTION

<b>Background</b>	<p>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.</p>
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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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**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA