

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

<b>Cat. No.:</b>	HY-P700130AF
<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>	P05112-1 (H25-S153)
<b>Gene ID:</b>	3565
<b>Molecular Weight:</b>	Approximately 15.9 kDa

### PROPERTIES

<b>AA Sequence</b>	<p>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</p> <p>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</p> <p>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</p> <p>M R E K Y S K C S S</p>
<b>Biological Activity</b>	Measure by its ability to induce TF-1 cells proliferation. The ED <sub>50</sub> for this effect is <0.2 ng/mL. The specific activity of recombinant human IL-4 is approximately >2.8 x 10 <sup>7</sup> IU/mg
<b>Appearance</b>	Lyophilized powder
<b>Formulation</b>	Lyophilized from a solution containing 1X PBS, pH 8.0, trehalose.
<b>Endotoxin Level</b>	<0.1 EU per 1 µg of the protein by the LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	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.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

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

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