IL-4 Protein, Mouse (HEK293, C-His)

Cat. No.:	HY-P70653A
Synonyms:	Interleukin-4; B-cell IgG differentiation factor; B-cell growth factor 1; B-cell stimulatory factor 1; IGG1 induction factor; Lymphocyte stimulatory factor 1; IL-4; BSF-1
Species:	Mouse
Source:	HEK293
Accession:	P07750 (H21-S140)
Gene ID:	16189
Molecular Weight:	Approximately 18 kDa

PROPERTIES

AA Sequence	H I H G C D K N H L R E I I G I L N E V T G E G T P C T E M D V P N V L T A T K N T T E S E L V C R A S K V L R I F Y L K H G K T P C L K K N S S V L M E L Q R L F R A F R C L D S S I S C T M N E S K S T S L K D F L E S L K S I M Q M D Y S
Biological Activity	Measured in a cell proliferation assay using HT-2 mouse T cells.The ED_{50} for this effect is 0.6958 ng/mL, corresponding to a specific activity is 1.437×10^6 units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 50 mM Tris-HCL, 300 mM NaCl, pH 7.4
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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	Interleukin 4 (IL-4) Protein is a pleiotropic cytokine secreted primarily by mast cells, T-cells, eosinophils, and basophils that plays a role in regulating antibody production, hematopoiesis and inflammation, and the development of effector T-cell responses. IL-4 gene encodes two distinct isoforms through alternatively spliced transcription. IL-4 is a ligand for interleukin 4 receptor (IL4R). IL4R also binds to IL-13, which may contribute to many overlapping functions of IL-4 and IL-13. Upon binding to IL4, IL4R receptor dimerizes either with the common IL2R gamma chain (IL2RG) to produce the type 1 signaling complex, located mainly on hematopoietic cells, or with the IL13RA1 to produce the type 2

complex, which is expressed also on nonhematopoietic cells. Engagement of both types of receptors initiates JAK3 and to a lower extend JAK1 phosphorylation leading to activation of the signal transducer and activator of transcription 6 (STAT6). IL4 is considered an important cytokine for tissue repair, counterbalancing the effects of proinflammatory type 1 cytokines, IL-4 also promotes allergic airway inflammation. Moreover, IL-4, a type 2 cytokine, mediates and regulates a variety of human host responses such as allergic, anti-parasitic, wound healing, and acute inflammation. IL-4 induces the expression of class II MHC molecules on resting B-cells, enhances both secretion and cell surface expression of IgE and IgG1 and regulates the expression of low affinity Fc receptor for IgE (CD23) on both lymphocytes and monocytes. IL-4 has been reported to promote resolution of neutrophil-mediated acute lung injury as well as positively regulates IL31RA expression in macrophages and stimulates autophagy in dendritic cells by interfering with mTORC1 signaling and through the induction of RUFY4. In addition, IL-4 plays a critical role in higher functions of the normal brain, such as memory and learning.
IL-4 is implicated in several diseases, including asthma (multiple); autoimmune disease (multiple); hepatitis B; hepatitis C; and pancreatic cancer (multiple)[1][2][3][4][5][6].

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