Animal-Free IL-12 Protein, Human (HEK293, His)

Cat. No.:	HY-P700101AF
Synonyms:	Interleukin 12; Interleukin-12 subunit alpha; IL-12A; Cytotoxic lymphocyte maturation factor 35 kDa subunit; CLMF p35; IL-12 subunit p35; Interleukin-12 subunit beta; IL-12B; Cytotoxic lymphocyte maturation factor 40 kDa subunit; CLMF p40; IL-12 subunit p40
Species:	Human
Source:	HEK293
Accession:	P29459 (R23-S219) & P29460 (I23-S328)
Gene ID:	3592&3593
Molecular Weight:	Approximately 59.55 kDa

PROPERTIES

AA Sequence

I W E L K K D V Y V V E L D W Y P D A P G E M V V L T C D T P E E D G I T W T L
D Q S S E V L G S G K T L T I Q V K E F G D A G Q Y T C H K G G E V L S H S L L
L L H K K E D G I W S T D I L K D Q K E P K N K T F L R C E A K N Y S G R F T C
W W L T T I S T D L T F S V K S S R G S S D P Q G V T C G A A T L S A E R V R G
D N K E Y E Y S V E C Q E D S A C P A A E E S L P I E V M V D A V H K L K Y E N
Y T S S F F I R D I I K P D P P K N L Q L K P L K N S R Q V E V S W E Y P D T W
S T P H S Y F S L T F C V Q V Q G K S K R E K K D R V F T D K T S A T V I C R K
N A S I S V R A Q D R Y Y S S S W S E W A S V P C S & G S T S G S G K P G S G E
G S T K G R N L P V A T P D P G M F P C L H H S Q N L L R A V S N M L Q K A R Q
T L E F Y P C T S E E I D H E D I T K D K T S T V E A C L P L E L T K N E S C L
N S R E T S F I T N G S C L A S R K T S F M M A L C L S S I Y E D L K M Y Q V E
F K T M N A K L L M D P K R Q I F L D Q N M L A V I D E L M Q A L N F N S E T V
P Q K S S L E E P D F Y K T K I K L C I L L H A F R I R A V T I D R V M S Y L N
A S H H H H H H

Biological Activity	Measure by its ability to induce IFN gamma secretion in PHA- activated human peripheral blood lymphocytes (PBMC). The ED_{50} for this effect is 0.05-0.2 ng/mL
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS, pH 7.4.
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	IL-35 Protein plays a pivotal role in immune regulation, exhibiting versatility in its functions. It heterodimerizes with IL12B to form the IL-12 cytokine or with EBI3/IL27B to create the IL-35 cytokine. IL-12, primarily produced by professional antigen-presenting cells such as B-cells, dendritic cells, macrophages, and granulocytes, serves as a crucial link between innate resistance and adaptive immunity, regulating T-cell and natural killer-cell responses while inducing interferon-gamma production and favoring the differentiation of T-helper 1 cells. Mechanistically, IL-12 exerts its effects through a receptor composed of IL12R1 and IL12R2 subunits, leading to tyrosine phosphorylation of cellular substrates and subsequent regulation of cytokine/growth factor responsive genes by recruited phosphorylated STAT4. In the context of IL-35, IL-35 contributes significantly to maintaining immune homeostasis in the liver microenvironment and functions as an immune-suppressive cytokine. Notably, IL-35 mediates its effects through unconventional receptors composed of IL12RB2 and gp130/IL6ST heterodimers or homodimers, requiring the transcription factors STAT1 and STAT4 for signaling. Additionally, IL-35 interacts with NBR1, promoting IL-12 secretion. The IL-35 heterodimer with EBI3/IL27B, known as interleukin IL-35, is not disulfide-linked, distinguishing it from the disulfide-linked IL-12 heterodimer with IL12B.

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