IL-12 Protein, Human (HEK293, His)

Cat. No.:	HY-P73898
Synonyms:	Interleukin-12 subunit alpha; IL-12A; CLMF p35; IL-12 subunit p35; NKSF1
Species:	Human
Source:	HEK293
Accession:	P29459 (R23-S219) & P29460 (I23-S328)
Gene ID:	3592&3593
Molecular Weight:	Approximately 40&43 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
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.
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-12 subunit alpha (IL-12A; IL-12p35), an immune-suppressive cytokine, encodes a subunit of the cytokine IL-12 that acts on T and natural killer cells, and has a broad array of biological activities. IL-12A is a disulfide-linked heterodimer composed of the 35-kD subunit encoded by this gene, and a 40-kD subunit that is a member of the cytokine receptor family. IL-12 is primarily produced by professional antigen-presenting cells (APCs) such as B-cells and dendritic cells (DCs) as well as macrophages and granulocytes, induces the production of IFN-gamma, favors the differentiation of Th1 cells and is an important link between innate resistance and adaptive immunity[1][2].

The amino acid sequence of human IL-12A protein has low homology between mouse IL-12A protein. While, human IL-12A shares 94% aa sequence identity with Rhesus Macaque IL-12A protein.

IL-12 family cytokines are pleiotropic immunological playmakers that coordinate innate and adaptive immune responses mainly via regulation of T-cell populations. The four core members of the Interleukin-12 (IL-12) family of cytokines, IL-12, IL-23, IL-27 and IL-35 are heterodimers which share α-cytokine subunits (IL-12p35 (IL-12A), IL-23p19, and IL-27p28) and β-cytokine subunits (IL-12p40, Ebi3). The subunits are each encoded by separate chromosomes and their expression is regulated independently. Among them, the IL-12A subunit has immunoregulatory functions hitherto attributed to IL-35. Pairing of the α-subunits, IL-12A or IL-23p19 with IL-12p40, gives rise to the two pro-inflammatory members IL-12 and IL-23, respectively, whereas the two immunosuppressive members of the family, IL-27 and IL-35, derive from pairing of IL-27p28 or

IL-12A with Ebi3[1][2].
IL-12A suppresses lymphocyte proliferation, induces expansion of IL-10-expressing and IL-35-expressing B cells and ameliorates autoimmune uveitis in mice by antagonizing pathogenic Th17 responses. IL-12A-mediated expansion of Treg and Breg cells and its amelioration of experimental autoimmune encephalomyelitis (EAE) correlated with inhibition of cytokine-induced activation of STAT1/STAT3 pathways. IL-12A may be utilized for in vivo expansion of Tregs and Bregs cells and autologous Tregs and Bregs cell immunotherapy[1][2].

REFERENCES

[1]. Ivy M Dambuza, et al. IL-12p35 induces expansion of IL-10 and IL-35-expressing regulatory B cells and ameliorates autoimmune disease. Nat Commun. 2017 Sep 28;8(1):719.

[2]. Jin Kyeong Choi, et al. IL-12p35 Inhibits Neuroinflammation and Ameliorates Autoimmune Encephalomyelitis. Front Immunol. 2017 Oct 5;8:1258.

[3]. D De Wit, et al. Helper T-cell responses elicited by Der p 1-pulsed dendritic cells and recombinant IL-12 in atopic and healthy subjects. J Allergy Clin Immunol. 2000 Feb;105(2 Pt 1):346-52.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

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