

IL-12R beta 2 Protein, Mouse (HEK293, His)

Cat. No.:	HY-P74834
Synonyms:	Interleukin-12 receptor subunit beta-2; IL-12R-beta-2; IL-12RB2
Species:	Mouse
Source:	HEK293
Accession:	P97378 (N24-N637)
Gene ID:	16162
Molecular Weight:	100-130 kDa

PROPERTIES

AA Sequence

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

Biological Activity

Measured by its binding ability in a functional ELISA. When Recombinant Mouse IL-12R beta 2 is immobilized at 0.5 µg/mL (100 µL/well), the concentration of rmIL-12 that produces 50% of the optimal binding response is found to be approximately 19.97 ng/mL.

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.

Reconstitution

It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH₂O.

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-12 receptor is a type I cytokine receptor that binds to IL-12. IL-12 receptor is expressed primarily on NK and T cells and consists of beta 1 and beta 2 subunits and is a member of the gp130 cytokine receptor superfamily. IL-12R beta 2 (abbreviated IL-12R2 or IL-12Rβ2) is a subunit of the IL-12 receptor, and IL-12Rβ2 is its human gene name. Co-expression of IL-12Rβ2 protein and IL-12Rβ1 protein can lead to the formation of high-affinity IL-12 binding sites and the reconstitution of IL-12-dependent signaling. Upon IL-12 binding to the IL-12 receptor, the cytoplasmic protein TYK2, which interacts directly with IL-12Rβ1, and JAK2, which interacts with IL-12Rβ2, are tyrosine phosphorylated. Phosphorylated TYK2 and JAK2 are required for subsequent tyrosine phosphorylation and activation of STAT4 that binds to IL-12Rβ2. STAT4 is a transcription factor that subsequently homodimerizes, translocates to the nucleus and binds to its target DNA to activate transcription of IFN-γ and other target genes^[1].

Expression of the IL-12Rβ2 chain is thought to be a key factor in controlling T cell development and function. It plays an important role in Th1 cell differentiation and deletion results in failure of Th1 differentiation and dysfunctional production of Th1 effector molecules. Up-regulation of this gene has been found to be associated with many infectious diseases, such as Crohn's disease and leprosy, which are thought to contribute to the inflammatory response and host defense^[2].

REFERENCES

- [1]. Esther van de Vosse, et al. IL-12Rβ1 deficiency: mutation update and description of the IL12RB1 variation database. *Hum Mutat.* 2013 Oct;34(10):1329-39.
- [2]. Ryuta Nishikomori, et al. Activated STAT4 has an essential role in Th1 differentiation and proliferation that is independent of its role in the maintenance of IL-12R beta 2 chain expression and signaling. *J Immunol.* 2002 Oct 15;169(8):4388-98.
- [3]. Xuefang Cao, et al. Interleukin 12 stimulates IFN-gamma-mediated inhibition of tumor-induced regulatory T-cell proliferation and enhances tumor clearance. *Cancer Res.* 2009 Nov 15;69(22):8700-9.
- [4]. Gaëlle Chognard, et al. The dichotomous pattern of IL-12r and IL-23R expression elucidates the role of IL-12 and IL-23 in inflammation. *PLoS One.* 2014 Feb 21;9(2):e89092.

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