

IL-18R alpha Protein, Rat (HEK293, His)

Cat. No.:	HY-P76424
Synonyms:	Interleukin-18 receptor 1; IL-18R1; CDw218a; IL1RRP; IL-18R-alpha; CD218a
Species:	Rat
Source:	HEK293
Accession:	A0A8I6A1C2 (A18-G326)
Gene ID:	301365
Molecular Weight:	Approximately 55-75 kDa

PROPERTIES

AA Sequence	<pre> A P K S C I R R S Q I H V V E G E P F Y L K P C D M S A P M H N N E T A T M R W F K G N A S H G Y R E L N M R S S P R I A F H G H A L E F W P V E L E D K G T Y F S Q V G N D R Q N W T L N V T K R N K H S C F S E K L V T N R D V E V K K S L W I T C E N P S Y G E L I N H T L L Y K N C K E I S K T P M I L K D A E F G D E G Y Y S C V F S V H H N G Q Q Y N I T K T V N I T V I E G N S K I T P A I F G S K S A K V G V E L G E D V E L N C S A V L N R N D L F Y W S I R K E D S L D P N V H E D R N E T T W T F E G K L H A S K I L R I Q K V T E K Y L N V L Y N C T V A N E E A T D T K S F I L V R K E T P D I Q G H V F M R G </pre>
Biological Activity	Measured by its binding ability in a functional ELISA. When Recombinant Rat IL-18R alpha Protein is immobilized at 2 µg/mL (100 µL/well) can bind Biotinylated Recombinant Mouse IL-18 Protein. The ED ₅₀ for this effect is 1.3 µg/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of PBS, pH 7.4.
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 ddH ₂ O. 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	IL-18R alpha is expressed on CD4 ⁺ and CD8 ⁺ T cells but not expressed on naive T cells ^[4] .
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The amino acid sequence of human IL-18R alpha protein has low homology for mouse IL-18R alpha protein. IL-18R alpha is the receptor of IL-18. IL-18 is extracellularly secreted and binds IL-18 receptor α (R α) as well as IL-18 receptor β (R β) at the immunocyte plasma membrane in a stepwise manner. IL-18/IL-18R α /IL-18R β ternary complex formation juxtaposes the intracellular Toll-Interleukin-1 receptor domains of IL-18R α and IL-18R β . Then, the adaptor molecule myeloid differentiation factor 88 (MyD88) is recruited presumably with the aid of TRAM. MyD88 further interacts with IL-1 receptor associating kinase (IRAK) 4 and IRAK1/2 to form the large molecular assembly referred to as Myddosome, which subsequently activates IKK via TRAF6. Finally, the signal activates the NF- κ B and mitogen-activated protein kinase pathways⁷, which upregulate the expression of various inflammatory cytokines^[1]. IL-18R alpha binds to IL-18 and IL-18 receptor β forms a signalling complex induces the expression of various inflammatory cytokines^[1]. IL-18R alpha inhibits the production of IFN- γ stimulated with the combination of rhIL-2 and rhIL-18^[3].

REFERENCES

- [1]. Tsutsumi N, et al. The structural basis for receptor recognition of human interleukin-18. *Nat Commun.* 2014 Dec 15;5:5340.
- [2]. Watanabe M, et al. Predominant expression of 950delCAG of IL-18R alpha chain cDNA is associated with reduced IFN-gamma production and high serum IgE levels in atopic Japanese children. *J Allergy Clin Immunol.* 2002 Apr;109(4):669-75.
- [3]. Takei S, et al. Soluble interleukin-18 receptor complex is a novel biomarker in rheumatoid arthritis. *Arthritis Res Ther.* 2011 Mar 24;13(2):R52.
- [4]. Smeltz RB, et al. Regulation of interleukin (IL)-18 receptor alpha chain expression on CD4(+) T cells during T helper (Th)1/Th2 differentiation. Critical downregulatory role of IL-4. *J Exp Med.* 2001 Jul 16;194(2):143-53.
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