

IL-2R beta/CD122 Protein, Rat (HEK293, His)

Cat. No.:	HY-P76771
Synonyms:	Interleukin-2 receptor subunit beta; IL2RB; High affinity IL-2 receptor subunit beta; CD122
Species:	Rat
Source:	HEK293
Accession:	NP_037327 (A27-E239)
Gene ID:	25746
Molecular Weight:	Approximately 30-49 kDa.

PROPERTIES

AA Sequence	<p> AVNDCSHLKC FYNSRANVSC MWSPEEALNV TSCIHAKSD MRHWNKTCEL TPVRQASWAC NLILGPLPDS QSLTSVDLLS LSVVCWEEKG WRRVKTCNFH PFDNLRLLIAP HSLQVLHIET RRCNISWEVS QVSHYVNPYL EFEARRRLLD RSWEDASVFS LKQRQQWIFL ETLTPDTSYE LQVRVIAQRG KTRTWSPWSQ PVAFRTRPAD PKE </p>
Biological Activity	Measured by its ability to inhibit the IL-15-dependent proliferation of MO7e human megakaryocytic leukemic cells. The ED ₅₀ for this effect is 7.957 µg/mL in the presence of 4.0 ng/mL of recombinant human IL-15, corresponding to a specific activity is 6.094×10 ⁵ units/mg.
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-2R beta (CD122) is a type I cytokine receptor, and belongs to Type 4 subfamily. IL-2R beta is also a key component of the IL-15 receptor. IL-2R beta is broadly expressed in spleen, blood, and lymph node, such as B and T lymphocytes ^{[1][3]} .
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The sequence of amino acids in IL-2R beta differs in different species. Rats IL-2R beta shares 81.01% aa sequence identity with mouse. Human IL-2R beta shares <60% aa sequence identity with mouse and rats.

IL-2R beta cytoplasmic domain heterodimerizes with IL-2 and leads to the activation of signaling pathways: phosphoinositol 3-kinase (PI3-K)/AKT, Ras-MAP kinase, and the JAK-STAT pathways^[4]. IL-2R beta binds IL-2 with intermediate affinity. IL-2R beta mediates IL-2 internalization and signal transduction, such as cell proliferation or differentiation^[5]. IL-2R beta interacts with IL-2 and increases the proportion of CD4+ T lymphocytes^[1]. IL-2R stimulates T cell proliferation and activating lymphokine-activated killer cells^[2].

IL-2R beta mediates T cell immune responses, and also mediates endocytosis, as well as transducing the mitogenic signals of IL-2.

REFERENCES

- [1]. Xiujuan Zhou, et al. Interleukin-2 (IL-2) Interacts With IL-2 Receptor Beta (IL-2R β): Its Potential to Enhance the Proliferation of CD4+ T Lymphocytes in Flounder (Paralichthys olivaceus). *Front Immunol.* 2020 Sep 9;11:531793.
- [2]. R N Bamfordm, et al. The interleukin (IL) 2 receptor beta chain is shared by IL-2 and a cytokine, provisionally designated IL-T, that stimulates T-cell proliferation and the induction of lymphokine-activated killer cells. *Proc Natl Acad Sci U S A.*1999 May
- [3]. Xiujuan Zhou, et al. Immunological characteristics of Interleukin-2 receptor subunit beta (IL-2R β) in flounder (Paralichthys olivaceus): Implication for IL-2R function. *Fish Shellfish Immunol.* 2019 Oct;93:641-656.
- [4]. Akira Sakai, et al. The role of tumor-associated macrophages on serum soluble IL-2R levels in B-cell lymphomas. *J Clin Exp Hematop.* 2014;54(1):49-62.
- [5]. M Allouche, et al. Interleukin 2 receptors. *Leuk Res.* 1990;14(8):699-708.
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