IL-2 Protein, Rat (145aa, HEK293, C-His)

Cat. No.:	HY-P700649
Synonyms:	Interleukin-2; IL-2; T-cell growth factor; TCGF; Aldesleukin; IL2
Species:	Rat
Source:	HEK293
Accession:	P17108 (A11-Q155)
Gene ID:	116562
Molecular Weight:	Approximately 18 kDa

PROPERTIES

AA Sequence	A L T L V L L V N S A P T S S P A K E T Q Q H L E Q L L L D L Q V L L R G I D N Y K N L K L P M M L T F K F Y L P K Q A T E L K H L Q C L E N E L G A L Q R V L D L T Q S K S F H L E D A G N F I S N I R V T V V K L K G S E N K F E C Q F D D E P A T V V E F L R R W I A I C Q S I I S T M T Q
Biological Activity	Measured in a cell proliferation assay using CTLL-2 mouse cytotoxic T cells. The ED_{50} this effect is 0.1884 ng/mL, corresponding to a specific activity is 5.307×10^6 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.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. 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-2, a cytokine primarily produced by activated CD4-positive helper T-cells, and to a lesser extent by activated CD8-positive T-cells and natural killer (NK) cells, plays pivotal roles in immune response and tolerance. It binds to a receptor complex composed of either the high-affinity trimeric IL-2R (IL2RA/CD25, IL2RB/CD122, and IL2RG/CD132) or the low-affinity dimeric IL-2R (IL2RB and IL2RG). The interaction triggers oligomerization and conformational changes in the IL-2R subunits, initiating downstream signaling that begins with the phosphorylation of JAK1 and JAK3. Consequently, JAK1 and JAK3

phosphorylate the receptor, creating a docking site for the phosphorylation of substrates, including STAT5, activating pathways such as STAT, phosphoinositide-3-kinase/PI3K, and mitogen-activated protein kinase/MAPK. IL-2 functions as a T-cell growth factor, enhances NK-cell cytolytic activity, and fosters robust proliferation of activated B-cells, leading to increased immunoglobulin production. Crucially, IL-2 plays a pivotal role in regulating the adaptive immune system by governing the survival and proliferation of regulatory T-cells, crucial for immune tolerance maintenance. Furthermore, it participates in the differentiation and homeostasis of effector T-cell subsets, including Th1, Th2, Th17, as well as memory CD8-positive T-cells.

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