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IL-2

Catalog # PVGS1073

Product Information

Primary Accession	P04351
Species	Mouse
Sequence	Ala21-Gln169
Purity	> 95% as analyzed by SDS-PAGE > 95% as analyzed by HPLC
Endotoxin Level	
Biological Activity	Fully biologically active when compared to standard. The ED_{50} as determined by a cell proliferation assay using murine CTLL-2 cells is less than 0.2 ng/ml, corresponding to a specific activity of > 5.0×10^6 IU/mg.
Expression System	E. coli
Theoretical Molecular Weight	17.2 kDa
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS, pH 7.4.
Reconstitution	It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in sterile distilled water or aqueous buffer containing 0.1 % BSA to a concentration of 0.1-1.0 mg/ml.
Storage & Stability	Upon receiving, this product remains stable for up to 6 months at -70°C or -20°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. Avoid repeated freeze-thaw cycles.

Additional Information

Gene ID	16183
Other Names	Interleukin-2, IL-2, T-cell growth factor, TCGF, Il2, Il-2
Target Background	Mature mouse IL-2 shares 56% and 73% aa sequence identity with human and rat IL-2, respectively. It shows strain-specific heterogeneity in an N-terminal region that contains a poly-glutamine stretch. Mouse and human IL-2 exhibit cross-species activity. The receptor for IL-2 consists of three subunits that are present on the cell surface in varying preformed complexes. The 55 kDa IL-2 R alpha is specific for IL-2 and binds with low affinity. The 75 kDa IL-2 R beta, which is also a component of the IL-15 receptor, binds IL-2 with intermediate affinity. The 64 kDa common gamma chain gamma c/IL-2 R gamma, which is shared with the receptors for IL-4, -7, -9, -15, and -21, does not independently interact with IL-2. Upon ligand binding, signal transduction is performed by both IL-2 R beta and gamma c. It drives resting T cells to

proliferate and induces IL-2 and IL-2 R alpha synthesis. It contributes to T cell homeostasis by promoting the Fas-induced death of naïve $CD4^+$ T cells but not activated $CD4^+$ memory lymphocytes. IL-2 plays a central role in the expansion and maintenance of regulatory T cells, although it inhibits the development of Th17 polarized cells.

Protein Information

Name	Il2
Synonyms	Il-2
Function	Cytokine produced by activated CD4-positive helper T-cells and to a lesser extend activated CD8-positive T-cells and natural killer (NK) cells that plays pivotal roles in the immune response and tolerance (PubMed:14614860, PubMed:9814585). 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). Interaction with the receptor leads to oligomerization and conformation changes in the IL-2R subunits resulting in downstream signaling starting with phosphorylation of JAK1 and JAK3. In turn, JAK1 and JAK3 phosphorylate the receptor to form a docking site leading to the phosphorylation of several substrates including STAT5 (PubMed:14614860, PubMed:27018889). This process leads to activation of several pathways including STAT, phosphoinositide-3- kinase/PI3K and mitogen-activated protein kinase/MAPK pathways. Functions as a T-cell growth factor and can increase NK-cell cytolytic activity as well. Promotes strong proliferation of activated B-cells and subsequently immunoglobulin production. Plays a pivotal role in regulating the adaptive immune system by controlling the survival and proliferation of regulatory T-cells, which are required for the maintenance of immune tolerance (PubMed:14614860). Moreover, participates in the differentiation and homeostasis of effector T-cell subsets, including Th1, Th2, Th17 as well as memory CD8-positive T-cells (PubMed:9814585).
Cellular Location	Secreted.
Tissue Location	Produced by immune cells including dendritic cells. In contrast, macrophages do not produce IL2 upon bacterial stimulation

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