

## CD25/IL2R alpha Protein, Human, Recombinant (His)

## General Information

Synonyms:	interleukin 2 receptor, $\alpha$ ;IL-2RA;IDDM10;IL2R;interleukin 2 receptor, alpha;TCGFR;CD25; CD25/IL2R $\alpha$ ;p55
Protein Construction:	A DNA sequence encoding the extracellular domain of human IL2RA (NP_000408.1) (Met1-Cys213) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Glu 22
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P01589
Molecular Weight:	23.3 kDa (predicted); 44 kDa (reducing condition, due to glycosylation)

## QC Testing

Biological Activity:	Measured by its ability to inhibit IL2-induced proliferation of M07e cells. The ED50 for this effect is 0.2-1.2 $\mu$ g/mL in the presence of 30 ng/mL of recombinant human IL2.
Purity:	> 97 % as determined by SDS-PAGE. > 90 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 $\mu$ m filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

## Preparation and Storage

Reconstitution:	Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

## Protein Background

CD25 (alpha-chain of the IL-2 receptor, or IL2RA), is a type I transmembrane glycoprotein with a signal peptide, an extracellular region, a transmembrane region, and a cytoplasmic domain. IL2RA is expressed on activated T cells and regulatory T cells and is capable of binding IL2 with low affinity by itself. However, a ligand-induced high-affinity heterotrimeric receptor complex is produced when IL2RA is associated non-covalently with the IL2 receptor

beta and gamma chain, and subsequently initiates the intracellular signal pathways such as MAPK or JAK/STAT. On dendritic cells (DC), CD25 has been previously regarded as an activation marker, while both murine and human DC can express CD25, they do not express the beta-chain of the IL-2 receptor, which is indispensable for the execution of IL-2 signaling. The IL2RA (CD25) gene is a substantial component of the high-affinity receptor molecule highly expressed by activated T lymphocytes. Recently, a piece of strong evidence was obtained for the involvement of IL-2RA in conferring susceptibility to type 1 diabetes (T1D). Cancer growth and development are associated with the stimulation of the innate immune system, including enhanced interleukin 2 receptor (IL-2R) expression in immune cells and its shedding into the circulation in a soluble form of sIL-2Ralpha. In most hematological malignancies, including different types of leukemias and lymphomas, sIL-2Ralpha is released directly from the surface of neoplastic cells thus reflecting the tumor bulk, turnover, and activity. Several studies have proved that not only lymphoid cancer cells but also some non-lymphoid cancer cells, express IL-2R on their surface. They include malignant melanoma and carcinomas of the kidney, head and neck, esophagus, and lung. Thus, sIL-2Ralpha is elevated in most proliferative disturbances of the hematopoietic system and many solid tumors. Cancer Immunotherapy Immune Checkpoint Immunotherapy Targeted Therapy

### Reference

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- Bien E, et al. (2008) Serum soluble interleukin 2 receptor alpha in human cancer of adults and children: a review. *Biomarkers*. 13(1): 1-26.

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