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# In Vivo Star Anti-Mouse CD25 (IL-2Rα) Antibody

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| **Catalog Number:** | 509001, 509002, 509003 |
| **Size:** | 1 mg, 5 mg, 25 mg |
| **Target Name:** | IL-2 receptor α chain, Low affinity IL-2R, IL-2Rα chain |
| **Regulatory Status:** | RUO |

## PRODUCT DETAILS

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| **Clone:** | PC61.5.3 |
| **Application:** | ELISA, WB, Flow cytometry, IHC, ICC, animal model study |
| **Reactivity:** | Mouse |
| **Format:** | Liquid |
| **Product Description:** | In vivo Grade Recombinant Anti-mouse CD25 Monoclonal Antibody |
| **Isotype:** | Rat IgG1 Lambda |
| **Antibody Type:** | Recombinant |
| **Purity:** | >95% by reducing SDS-PAGE |
| **Endotoxin:** | < 1 EU per 1 mg of the protein by the LAL method. |
| **Storage Conditions:** | 4ºC |
| **Grade:** | In vivo |
| **Recommended Usage:** | This product is suitable for in vivo animal use. Optimal amounts need to be determined empirically for each experiment. |
| **Hidden Synonyms:** | InVivoMab, InVivoPlus, GoInVivo, In Vivo Gold |
| **RRID:** | AB_3739364 |
| **GeneID:** | 16184 |

## BACKGROUND INFORMATION

CD25, also known as the interleukin-2 receptor alpha chain (IL-2Rα), is a transmembrane glycoprotein that plays a central role in regulating immune responses. It functions as part of the interleukin-2 (IL-2) receptor complex, which is essential for T cell proliferation, survival, and differentiation. CD25 itself has low affinity for IL-2 when expressed alone, but when combined with IL-2 receptor beta (CD122) and the common gamma chain (CD132), it forms the high-affinity IL-2 receptor complex capable of effective signal transduction.

Structurally, CD25 is a single-pass type I membrane protein composed of an extracellular domain of approximately 219 amino acids responsible for IL-2 binding, a hydrophobic transmembrane segment, and a short cytoplasmic tail that lacks intrinsic signaling domains. The extracellular region is heavily glycosylated, which stabilizes its conformation and facilitates ligand interaction. Because the alpha chain alone is not signaling-competent, it acts primarily to increase the receptor complex's affinity for IL-2 and to

expand the range of cells responsive to low cytokine concentrations.

CD25's main ligand, IL-2, is a cytokine crucial for T lymphocyte expansion and immune tolerance. Engagement of IL-2 with the high-affinity receptor triggers the JAK-STAT signaling pathway, leading to cell proliferation, differentiation, and regulatory T cell (Treg) function. CD25 is constitutively expressed on Tregs and upregulated on activated CD4+ and CD8+ T cells, making it a marker of immune activation as well as immune regulation.

Aberrant CD25 expression or IL-2 signaling contributes to immune dysregulation and disease. In autoimmune disorders such as multiple sclerosis and type 1 diabetes, alterations in the IL-2/CD25 axis impair Treg function and tolerance mechanisms. Elevated CD25 expression is also found in certain malignancies, particularly adult T-cell leukemia/lymphoma and Hodgkin lymphoma, where it may serve as a biomarker of malignant proliferation. Moreover, soluble CD25, released from cell surfaces, can act as a decoy receptor, modulating IL-2 availability and contributing to immune suppression in cancer and chronic inflammation.

Therapeutically, CD25 is a prominent target for immune modulation. Monoclonal antibodies such as basiliximab and daclizumab have been developed to block IL-2 binding, preventing T cell activation and mitigating graft rejection in organ transplantation. Conversely, IL-2 or CD25-targeted therapies that enhance regulatory T cell function are being explored to treat autoimmune diseases and promote immune tolerance. Thus, CD25 remains a critical immunological node, balancing activation and regulation within the immune system.

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