

CTLA 4 Human

Cytotoxic T-Lymphocyte Associated Antigen-4 Human Recombinant

CYK0122

Product Overview

Name	CTLA 4 Human
Accession(Primary)	P16410
Immunogen	Anti-human CTLA4 mAb, clone PAT4F2AT, is derived from hybridization of mouse F0 myeloma cells with spleen cells from BALB/c mice immunized with a recombinant human CTLA4 protein 36-161 amino acids purified from E. coli.
Description	Cytotoxic T-Lymphocyte Associated Antigen-4 Human Recombinant

Target information (P16410)

Gene Name

About Gene Symbol

Background

Title: Cytotoxic T-Lymphocyte Associated Antigen-4 Human Recombinant: A Potential Immunotherapeutic Target Abstract: Cytotoxic T-lymphocyte associated antigen-4 (CTLA-4) is a key immune checkpoint receptor that plays a crucial role in regulating T-cell responses. This research paper provides an in-depth analysis of human recombinant CTLA-4, focusing on its production, characterization, and potential applications in immunotherapy. The paper discusses the significance of CTLA-4 in immune regulation, tumor immunity, and autoimmune diseases. Furthermore, it explores ongoing research and clinical trials investigating the therapeutic potential of recombinant CTLA-4 in various pathological conditions. The information presented in this paper aims to enhance our

understanding of human recombinant CTLA-4 and its utility as a research tool and a potential immunotherapeutic agent. Introduction: Cytotoxic T-lymphocyte associated antigen-4 (CTLA-4) is a cell surface receptor primarily expressed on T-cells. It functions as a negative regulator of T-cell activation, dampening immune responses to prevent excessive inflammation. Human recombinant CTLA-4, produced through genetic engineering techniques, provides researchers with a valuable tool to study its biological functions and explore its therapeutic potential. Production and Characterization: Recombinant CTLA-4 is typically generated using expression systems such as mammalian cells or bacteria. The protein is then purified and characterized to ensure its structural integrity and functional activity. Quality control measures are implemented to confirm the specificity and bioactivity of the recombinant CTLA-4. Role in Immune Regulation: CTLA-4 plays a critical role in immune regulation by downregulating T-cell activation and suppressing immune responses. It competes with the co-stimulatory receptor CD28 for binding to its ligands, CD80 and CD86, on antigen-presenting cells. This interaction inhibits T-cell activation and promotes immune tolerance. Recombinant CTLA-4 serves as a valuable tool for studying immune checkpoint mechanisms and their impact on immune responses. Therapeutic Implications: The blockade of CTLA-4 has emerged as a promising immunotherapeutic strategy in cancer treatment. Monoclonal antibodies targeting CTLA-4, such as ipilimumab, have shown significant clinical efficacy in enhancing anti-tumor immune responses. Recombinant CTLA-4-based therapies, including fusion proteins and engineered T-cell receptors, are being explored as potential immunotherapeutic interventions. Additionally, CTLA-4 plays a role in autoimmune diseases, making it a potential target for the development of novel treatments. Conclusion: Human recombinant CTLA-4 is a valuable research tool and a potential immunotherapeutic target. Its production, characterization, and applications in immune regulation contribute to our understanding of T-cell biology and the development of novel immunotherapies. Continued research and clinical trials investigating the therapeutic potential of recombinant CTLA-4 offer promising prospects for improving outcomes in cancer and autoimmune diseases.

References for protein:

Bibliography: Pardoll, D. M. (2012). The blockade of immune checkpoints in cancer immunotherapy. *Nature Reviews Cancer*, 12(4), 252-264. Hodi, F. S., O'Sullivan, S. J., McDermott, D. F., et al. (2010). Improved survival with ipilimumab in patients with metastatic melanoma. *New England Journal of Medicine*, 363(8), 711-723. Leach, D. R., Krummel, M. F., & Allison, J. P. (1996). Enhancement of antitumor immunity by CTLA-4 blockade. *Science*, 271(5256), 1734-1736. Walker, L. S., & Sansom, D. M. (2011). The emerging role of CTLA-4 as a cell-extrinsic regulator of T cell responses. *Nature Reviews Immunology*, 11(12), 852-863. Zhang, L., & Morgan, R. A. (2012). CTLA-4 blockade increases antigen-specific CD8⁺ T cells in prevaccinated patients with melanoma: three cases. *Cancer Immunology, Immunotherapy*, 61(6), 1047-1056.

