PRODUCT INFORMATION

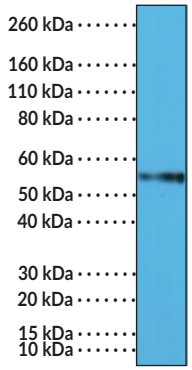
CD4 (N-Term) Rabbit Monoclonal Antibody

Item No. 32278

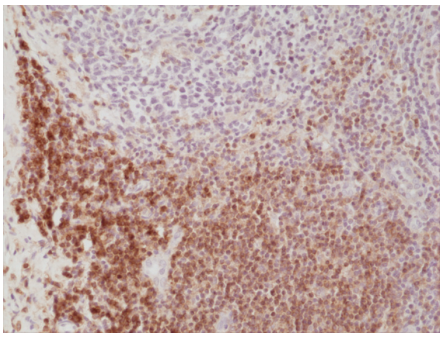
Overview and Properties

Contents:	This vial contains 100 µl of protein A-affinity purified monoclonal antibody.
Synonyms:	Cluster of Differentiation 4, T Cell Surface Antigen T4, T Cell Surface Glycoprotein CD4
Immunogen:	Peptide from the N-terminal region of human CD4
Cross Reactivity:	(+) CD4
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Clone:	RM345
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution for IHC is 1:200-1:500 and 1:2,000-1:5,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of Jurkat cell lysates using CD4 (N-Term) Rabbit Monoclonal Antibody at a 1:2,500 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human tonsil tissue using CD4 (N-Term) Rabbit Monoclonal Antibody at a 1:500 dilution.

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Description

CD4 is a type I transmembrane glycoprotein that functions as a T cell receptor (TCR) co-receptor.[1] It exists as a single polypeptide chain composed of four extracellular immunoglobulin-like (Ig-like) domains that interact with MHC class II molecules, a transmembrane domain, and a cytoplasmic tail that associates with the tyrosine kinase LCK and mediates signal transduction to the TCR, which is essential for T cell activation.[2] It is expressed on the surface of, and used as a marker for, T cells, and its expression is used to characterize the development stage of thymocytes. Upon binding to antigen-displaying MHC class II molecules expressed by antigen-presenting cells (APCs), naïve $CD4^+$ T cells differentiate and proliferate in a cytokine-dependent manner into a variety of T helper (Th) cell subsets, including Th1, Th2, and Th17 cells, which enhance and direct innate and adaptive immune cell responses to numerous pathogens and have additional roles in cancer, asthma and allergy, and autoimmunity.[3,4] CD4 is also the receptor for HIV attachment and entry into cells, resulting in depletion of $CD4^+$ cells in patients infected with HIV.[5,6] Cayman's CD4 (N-Term) Rabbit Monoclonal Antibody can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

References

1. Wittlich, M., Koenig, B.W., Hoffmann, S., *et al.* Structural characterization of the transmembrane and cytoplasmic domains of human CD4. *Biochim. Biophys. Acta* **1768(12)**, 2949-2960 (2007).
2. Mak, T.W. and Saunders, M.E. The T cell receptor: Structure of its proteins and genes. *The immune response: Basic and clinical principles*. Picknett, T. and Lebedeva, V., editors, 1st edition, *Elsevier Academic Press* (2006).
3. Nguyen, Q.P., Deng, T.Z., Witherden, D.A., *et al.* Origins of $CD4^+$ circulating and tissue-resident memory T-cells. *Immunology* **157(1)**, 3-12 (2019).
4. Zhu, J. and Paul, W.E. CD4 T cells: Fates, functions, and faults. *Blood* **112(5)**, 1557-1569 (2008).
5. Wilen, C.B., Tilton, J.C., and Doms, R.W. HIV: Cell binding and entry. *Cold Spring Harb. Perspect. Med.* **2(8)**, a006866 (2012).
6. Vijayan, K.K.V., Karthigeyan, K.P., Tripathi, S.P., *et al.* Pathophysiology of CD4+ T-cell depletion in HIV-1 and HIV-2 infections. *Front. Immunol.* **8**, 580 (2017).

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