

# PRODUCT INFORMATION



## CD4 Extracellular Domain (human, recombinant)

Item No. 31831

### Overview and Properties

**Synonyms:** Cluster of Differentiation 4, T Cell Surface Antigen T4, T Cell Surface Glycoprotein CD4  
**Source:** Active recombinant C-terminal human IgG1 Fc-tagged CD4 expressed in HEK293 cells  
**Amino Acids:** 26-390  
**Uniprot No.:** P01730  
**Molecular Weight:** 67.4 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥1 year  
**Purity:** ≥95% estimated by SDS-PAGE  
**Supplied in:** Lyophilized from sterile PBS, pH 7.4  
**Endotoxin Testing:** <1.0 EU/μg, determined by the LAL endotoxin assay

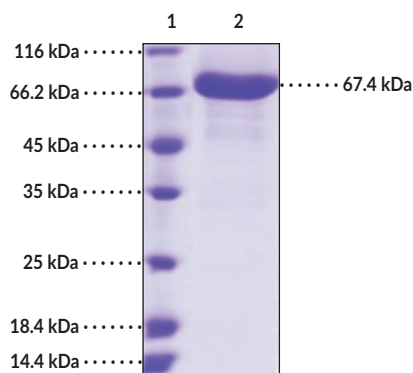
#### Protein

**Concentration:** *batch specific* mg/ml

**Activity:** Measured by the ability of the immobilized protein to support the adhesion of NIH3T3 mouse embryonic fibroblast cells. When  $5 \times 10^4$  cells/well are added to CD4-Fc-coated plates (1.25 μg/ml, 100 μl/well), approximately 20% to 50% of cells will adhere after 30 minutes at 37°C.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Image



Lane 1: MW Markers

Lane 2: CD4 Extracellular Domain

SDS-PAGE Analysis of CD4 Extracellular Domain. This protein has a calculated molecular weight of 67.4 kDa.

WARNING  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

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CD4 is a type I transmembrane glycoprotein that functions as a T cell receptor (TCR) co-receptor.<sup>1</sup> 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.<sup>2</sup> 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<sup>+</sup> 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.<sup>3,4</sup> CD4 is also the receptor for HIV attachment and entry into cells, resulting in depletion of CD4<sup>+</sup> cells in patients infected with HIV.<sup>5,6</sup> Cayman's CD4 Extracellular Domain (human, recombinant) protein can be used for cell-based assay applications. This protein is a disulfide-linked homodimer. The reduced monomer, comprised of CD4 (amino acids 26-390) fused to human IgG1 Fc at its C-terminus, consists of 603 amino acids, has a calculated molecular weight of 67.4 kDa, and a predicted N-terminus of Lys26 after signal peptide cleavage.

## References

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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, 1<sup>st</sup> edition, Elsevier Academic Press (2006).
3. Nguyen, Q.P., Deng, T.Z., Witherden, D.A., *et al.* Origins of CD4<sup>+</sup> 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<sup>+</sup> T-cell depletion in HIV-1 and HIV-2 infections. *Front. Immunol.* **8**, 580 (2017).

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