

# Human CD4 / LEU3 Protein (His & Fc Tag)

Catalog Number: 10400-H03H



Sino Biological  
Biological Solution Specialist

## General Information

### Gene Name Synonym:

CD4mut

### Protein Construction:

A DNA sequence encoding the human CD4 (NP\_000607.1) extracellular domain (Met 1-Trp 390) was fused with the C-terminal polyhistidine-tagged Fc region of human IgG1 at the C-terminus.

**Source:** Human

**Expression Host:** HEK293 Cells

## QC Testing

**Purity:** > 92 % as determined by SDS-PAGE

### Bio Activity:

1. Measured by the ability of the immobilized protein to support the adhesion of NIH-3T3 mouse embryonic fibroblast cells. When  $5 \times 10^4$  cells/well are added to CD4-Fc coated plates (1.25 µg/mL and 100 µL/well), approximately >50% will adhere specifically after 30 minutes at 37°C. 2. Measured by its binding ability in a functional ELISA. Immobilized human CD4 at 10 µg/mL (100 µL/well) can bind biotinylated GP140-His (Tri) (Cat: 11677-V08H) with a linear range of 0.16-1.25 µg/mL.

### Endotoxin:

< 1.0 EU per µg of the protein as determined by the LAL method

### Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

**Predicted N terminal:** Lys 26

### Molecular Mass:

The recombinant human CD4/Fc is a disulfide-linked homodimer. The reduced monomer consists of 612 amino acids and has a predicted molecular mass of 68.7 kDa. In SDS-PAGE under reducing conditions, the apparent molecular mass of rh CD4/Fc monomer is approximately 75 kDa due to glycosylation.

### Formulation:

Lyophilized from sterile PBS, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

## Usage Guide

### Storage:

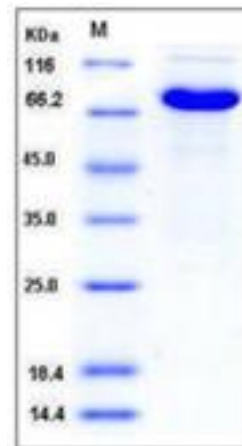
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

**Avoid repeated freeze-thaw cycles.**

### Reconstitution:

Detailed reconstitution instructions are sent along with the products.

## SDS-PAGE:



## Protein Description

T-cell surface glycoprotein CD4, is a single-pass type I membrane protein. CD4 contains three Ig-like C2-type (immunoglobulin-like) domains and one Ig-like V-type (immunoglobulin-like) domain. CD4 is a glycoprotein expressed on the surface of T helper cells, regulatory T cells, monocytes, macrophages, and dendritic cells. The CD4 surface determinant, previously associated as a phenotypic marker for helper/inducer subsets of T lymphocytes, has now been critically identified as the binding/entry protein for human immunodeficiency viruses (HIV). The human CD4 molecule is readily detectable on monocytes, T lymphocytes, and brain tissues. All human tissue sources of CD4 bind radiolabeled gp120 to the same relative degree; however, the murine homologous protein, L3T4, does not bind the HIV envelope protein. CD4 is a co-receptor that assists the T cell receptor (TCR) to activate its T cell following an interaction with an antigen presenting cell. Using its portion that resides inside the T cell, CD4 amplifies the signal generated by the TCR. CD4 interacts directly with MHC class II molecules on the surface of the antigen presenting cell via its extracellular domain. The CD4 molecule is currently the object of intense interest and investigation both because of its role in normal T-cell function, and because of its role in HIV infection. CD4 is a primary receptor used by HIV-1 to gain entry into host T cells. HIV infection leads to a progressive reduction of the number of T cells possessing CD4 receptors. Viral protein U (VpU) of HIV-1 plays an important role in downregulation of the main HIV-1 receptor CD4 from the surface of infected cells. Physical binding of VpU to newly synthesized CD4 in the endoplasmic reticulum is an early step in a pathway leading to proteasomal degradation of CD4. Amino acids in both helices found in the cytoplasmic region of VpU in membrane-mimicking detergent micelles experience chemical shift perturbations upon binding to CD4, whereas amino acids between the two helices and at the C-terminus of VpU show no or only small changes, respectively. Paramagnetic spin labels were attached at three sequence positions of a CD4 peptide comprising the transmembrane and cytosolic domains of the receptor. VpU binds to a membrane-proximal region in the cytoplasmic domain of CD4.

## References

1. Farrar WL, *et al.* (1988) Characterization of CD4 glycoprotein determinant-HIV envelope protein interactions: perspectives for analog and vaccine development. *Crit Rev Immunol.* 8(4): 315-39. 2. Biddison WE, *et al.* (1989) CD4 expression and function in HLA class II-specific T cells. *Immunol Rev.* 109: 5-15. 3. Singh SK, *et al.* (2012) Mapping the interaction between the cytoplasmic domains of HIV-1 viral protein U and human CD4 with NMR spectroscopy. *FEBS J.* 279(19):3705-14.

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