

SM3019P

Monoclonal Antibody to CD4 - Purified

Alternate names:

T-cell surface antigen T4/Leu-3, T-cell surface glycoprotein CD4

Quantity:

0.1 mg

Concentration:

1.0 mg/ml

Background:

CD4 is a single chain transmembrane glycoprotein and belongs to immunoglobulin supergene family. In extracellular region there are 4 immunoglobulin-like domains (1 Ig-like V-type and 3 Ig-like C2-type). Transmembrane region forms 25 aa, cytoplasmic tail consists of 38 aa. Domains 1,2 and 4 are stabilized by disulfide bonds. The intracellular domain of CD4 is associated with p56Lck, a Src-like protein tyrosine kinase. It was described that CD4 segregates into specific detergent-resistant T-cell membrane microdomains.

Extracellular ligands: MHC class II molecules (binds to CDR2-like region in CD4 domain 1); HIV envelope protein gp120 (binds to CDR2-like region in CD4 domain 1); IL-16 (binds to CD4 domain 3), Human seminal plasma glycoprotein gp17 (binds to CD4 domain 1), L-selectin

Intracellular ligands: p56Lck

CD4 is a co-receptor involved in immune response (co-receptor activity in binding to MHC class II molecules) and HIV infection (human immunodeficiency virus; CD4 is primary receptor for HIV-1 surface glycoprotein gp120). CD4 regulates T-cell activation, T/B-cell adhesion, T-cell differentiation, T-cell selection and signal transduction.

Defects in antigen presentation (MHC class II) cause dysfunction of CD4+ T-cells and their almost complete absence in patients blood, tissue and organs (SCID immunodeficiency).

Uniprot ID:
[P01730](#)
NCBI:
[NP_000607.1](#)
GeneID:
[920](#)
Host / Isotype:

Mouse / IgG2a

Recommended Isotype

AM03096PU-N

Controls:
Clone:

MEM-115

Immunogen:

Human thymocytes and T lymphocytes

Format:
State: Liquid purified Ig fraction (> 95% by SDS-PAGE)

Purification: Protein A Affinity Chromatography

Buffer System: Phosphate buffered saline (PBS) with 15 mM sodium azide, approx. pH 7.4

Applications:
Immunoprecipitation.

Functional Application: The antibody blocks binding of HIV gp120 to CD4 molecule and it also strongly inhibits CD4-MHC Class II interactions.

Flow Cytometry: 3 µg/ml

Application Note: Although it has not been tested rigorously, following data suggest

that the antibody is a low-affinity antibody: its binding to T cells increases at elevated temperature; monovalent Fab fragments essentially do not bind to T cells. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity:

The antibody MEM-115 recognizes an epitope in the D1 domain of CD4 antigen, a 55 kDa transmembrane glycoprotein expressed on a subset of T lymphocytes (helper T cells) and also on monocytes, tissue macrophages and granulocytes. It is negative in Western blotting even with non-reduced samples of cell lysates.

Species Reactivity:

Tested: Human

Storage:

Store undiluted at 2-8°C.

DO NOT FREEZE!

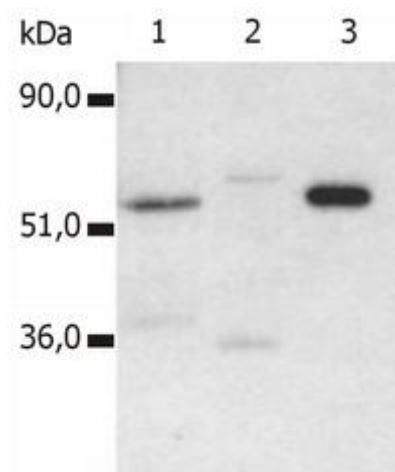
Shelf life: one year from despatch.

General Readings:

1. Millán J, Cerny J, Horejsi V, Alonso MA. CD4 segregates into specific detergent-resistant T-cell membrane microdomains. *Tissue Antigens*. 1999 Jan;53(1):33-40. PubMed PMID: 10082429.
2. Foti M, Phelouzat MA, Holm A, Rasmusson BJ, Carpentier JL. p56Lck anchors CD4 to distinct microdomains on microvilli. *Proc Natl Acad Sci U S A*. 2002 Feb 19;99(4):2008-13. PubMed PMID: 11854499.
3. Clapham PR, McKnight A.: Cell surface receptors, virus entry and tropism of primate lentiviruses. *J Gen Virol*. 2002 Aug;83(Pt 8):1809-29.
4. Leukocyte Typing V., Schlossman S. et al. (Eds.), Oxford University Press (1995).
5. Brdicková N, Brdicka T, Angelisová P, Horváth O, Spicka J, Hilgert I, et al. LIME: a new membrane Raft-associated adaptor protein involved in CD4 and CD8 coreceptor signaling. *J Exp Med*. 2003 Nov 17;198(10):1453-62. Epub 2003 Nov 10. PubMed PMID: 14610046.
6. Bosze S, Caccamo N, Majer Z, Mezo G, Dieli F, Hudecz F. In vitro T-cell immunogenicity of oligopeptides derived from the region 92-110 of the 16-kDa protein of *Mycobacterium tuberculosis*. *Biopolymers*. 2004;76(6):467-76. PubMed PMID: 15386261.
7. Singer II, Scott S, Kawka DW, Chin J, Daugherty BL, DeMartino JA, DiSalvo J, Gould SL, Lineberger JE, Malkowitz L, Miller MD, Mitnaul L, Siciliano SJ, Staruch MJ, Williams HR, Zweerink HJ, Springer MS: CCR5, CXCR4, and CD4 are clustered and closely apposed on microvilli of human macrophages and T cells.

Pictures:

Immunoprecipitation of human CD4 from the lysate T cells isolated from fresh buffy coats. Western blot was immunostained by anti-human CD4 (MEM-241). Lane 1: original lysate of T cells. Lane 2: immunoprecipitate by negative control antibody. Lane 3: immunoprecipitate by anti-human CD4 (MEM-115)



Surface staining of human peripheral blood with anti-human CD4 (MEM-115) purified, GAM-APC.

