

# CD4 (YNB46.1.8): sc-59041

## BACKGROUND

The T cell receptor (TCR) is a heterodimer composed of either  $\alpha$  and  $\beta$  or  $\gamma$  and  $\delta$  chains. CD3 chains and the CD4 or CD8 co-receptors are also required for efficient signal transduction through the TCR. The TCR is expressed on T helper and T cytotoxic cells that can be distinguished by their expression of CD4 and CD8; T helper cells express CD4 proteins and T cytotoxic cells display CD8. CD4 is also expressed on cortical cells, mature medullary thymocytes, microglial cells and Dendritic cells. CD4 (also designated T4 and Leu 3), is a 55 kDa membrane glycoprotein that contains four extracellular immunoglobulin-like domains. The TCR in association with CD4 can bind class II MHC molecules presented by the antigen-presenting cells. The CD4 protein functions by increasing the avidity of the interaction between the TCR and an antigen-class II MHC complex. An additional role of CD4 is to function as a receptor for HIV.

## REFERENCES

- Maddon, P.J., et al. 1987. Structure and expression of human and mouse T4 genes. Proc. Natl. Acad. Sci. USA 84: 9155-9159.
- Arthos, J., et al. 1989. Identification of the residues in human CD4 critical for the binding of HIV. Cell 57: 469-481.
- Healey, D., et al. 1990. Novel anti-CD4 monoclonal antibodies separate human immunodeficiency virus infection and fusion of CD4<sup>+</sup> cells from virus binding. J. Exp. Med. 172: 1233-1242.
- Allison, J.P., et al. 1991. The immunobiology of T cells with invariant  $\gamma\delta$  antigen receptors. Annu. Rev. Immunol. 9: 679-705.
- Janeway, C.A., Jr. 1992. The T cell receptor as a multicomponent signaling machine: CD4/CD8 co-receptors and CD45 in T cell activation. Annu. Rev. Immunol. 10: 645-674.
- Ehrlich, E.W., et al. 1993. T cell receptor interaction with peptide/major histocompatibility complex (MHC) and superantigen/MHC ligands is dominated by antigen. J. Exp. Med. 178: 713-722.
- Julius, M., et al. 1993. Distinct roles for CD4 and CD8 as coreceptors in antigen receptor signalling. Immunol. Today 14: 177-183.

## CHROMOSOMAL LOCATION

Genetic locus: CD4 (human) mapping to 12p13.31.

## SOURCE

CD4 (YNB46.1.8) is a rat monoclonal antibody raised against rat cells transfected with CD4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

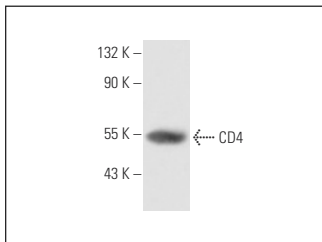
CD4 (YNB46.1.8) is recommended for detection of CD4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells).

Suitable for use as control antibody for CD4 siRNA (h): sc-29246, CD4 shRNA Plasmid (h): sc-29246-SH and CD4 shRNA (h) Lentiviral Particles: sc-29246-V.

Molecular Weight of CD4: 54 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, CCRF-CEM cell lysate: sc-2225 or SUP-T1 whole cell lysate: sc-364796.

## DATA



CD4 (YNB46.1.8): sc-59041. Western blot analysis of CD4 expression in CCRF-CEM whole cell lysate.

## SELECT PRODUCT CITATIONS

- Nika, K., et al. 2010. Constitutively active Lck kinase in T cells drives antigen receptor signal transduction. Immunity 32: 766-777.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **CD4 (MT310): sc-19641** for CD4 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.