

# CD4 (0.N.52): sc-70660

## 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 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.
- McKnight, A.J., et al. 1992. Biochemical and immunological properties of rat recombinant interleukin-2 and interleukin-4. *Immunology* 75: 286-292.

## CHROMOSOMAL LOCATION

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

## SOURCE

CD4 (0.N.52) is a mouse monoclonal antibody raised against the extracellular domain of CD4 of human origin.

## PRODUCT

Each vial contains 250  $\mu$ l culture supernatant containing IgG<sub>1</sub> with < 0.1% sodium azide.

## STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

## APPLICATIONS

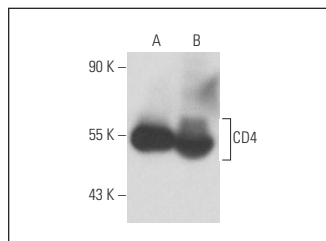
CD4 (0.N.52) is recommended for detection of CD4 of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:250), immunoprecipitation [1-2  $\mu$ l per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:20-1:40).

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.

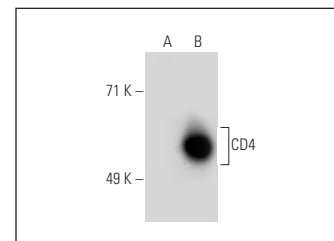
Molecular Weight of CD4: 54 kDa.

Positive Controls: CD4 (h): 293T Lysate: sc-114217, SUP-T1 whole cell lysate: sc-364796 or CCRF-CEM cell lysate: sc-2225.

## DATA



CD4 (0.N.52): sc-70660. Western blot analysis of CD4 expression in SUP-T1 (A) and CCRF-CEM (B) whole cell lysates.



CD4 (0.N.52): sc-70660. Western blot analysis of CD4 expression in non-transfected: sc-117752 (A) and human CD4 transfected: sc-114217 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

- Haim, H., et al. 2009. Soluble CD4 and CD4-mimetic compounds inhibit HIV-1 infection by induction of a short-lived activated state. *PLoS Pathog.* 5: e1000360.
- Shamji, M.F., et al. 2010. Proinflammatory cytokine expression profile in degenerated and herniated human intervertebral disc tissues. *Arthritis Rheum.* 62: 1974-1982.
- Cunha, L.L., et al. 2012. Infiltration of a mixture of immune cells may be related to good prognosis in patients with differentiated thyroid carcinoma. *Clin. Endocrinol.* 77: 918-925.

## 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.

## CONJUGATES

See **CD4 (MT310): sc-19641** for CD4 antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647.