SANTA CRUZ BIOTECHNOLOGY, INC.

CD4 (MT310): sc-19641

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The T cell receptor (TCR) is a heterodimer composed of either α and β or γ and δ 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 immunoglobin-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 in-creasing 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

1. Maddon, P.J., et al. 1987. Structure and expression of human and mouse T4 genes. Proc. Natl. Acad. Sci. USA 84: 9155-9159.
2. Arthos, J., et al. 1989. Identification of the residues in human CD4 critical for the binding of HIV. Cell 57: 469-481.
3. Healey, D., et al. 1990. Novel anti-CD4 monoclonal antibodies separate human immunodeficiency virus infection and fusion of $CD4^+$ cells from virus binding. J. Exp. Med. 172: 1233-1242.

CHROMOSOMAL LOCATION

Genetic locus: CD4 (human) mapping to 12p13.31; Cd4 (mouse) mapping to 6 F2.

SOURCE

CD4 (MT310) is a mouse monoclonal antibody raised against CD4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD4 (MT310) is available conjugated to agarose (sc-19641 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-19641 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-19641 PE), fluorescein (sc-19641 FITC), Alexa Fluor® 488 (sc-19641 AF488), Alexa Fluor® 546 (sc-19641 AF546), Alexa Fluor® 594 (sc-19641 AF594) or Alexa Fluor® 647 (sc-19641 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-19641 AF680) or Alexa Fluor® 790 (sc-19641 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, CD4 (MT310) is available conjugated to either Alexa Fluor® 405 (sc-19641 AF405, 200 µg/ml) or APC-Cy7 (sc-19641 APCC7), 100 tests in 2 ml, for IF, IHC(P) and FCM.

STORAGE

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

APPLICATIONS

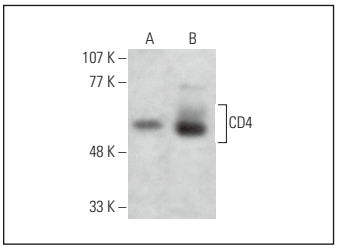
CD4 (MT310) is recommended for detection of CD4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for CD4 siRNA (h): sc-29246, CD4 siRNA (m): sc-29997, CD4 shRNA Plasmid (h): sc-29246-SH, CD4 shRNA Plasmid (m): sc-29997-SH, CD4 shRNA (h) Lentiviral Particles: sc-29246-V and CD4 shRNA (m) Lentiviral Particles: sc-29997-V.

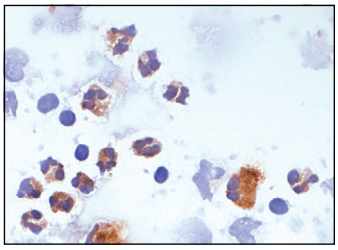
Molecular Weight of CD4: 54 kDa.

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

DATA



CD4 (MT310) HRP: sc-19641 HRP. Direct western blot analysis of CD4 expression in SUP-T1 (**A**) and HL-60 (**B**) whole cell lysates.



CD4 (MT310): sc-19641. Immunoperoxidase staining of formalin-fixed, human peripheral blood lymphocytes showing membrane staining.

SELECT PRODUCT CITATIONS

1. Akkoyunlu, G., et al. 2004. Distribution patterns of leucocyte subpopulations expressing different cell markers in the cumulus-oocyte complexes of pregnant and pseudopregnant mice. Reprod. Fertil. Dev. 15: 389-395.
2. Bai, J., et al. 2020. Expression of melatonin receptors and CD4 in the ovine thymus, lymph node, spleen and liver during early pregnancy. Immunology 160: 52-63.
3. Pan, S., et al. 2021. Stimulation of hypothalamic oxytocin neurons suppresses colorectal cancer progression in mice. Elife 10: e67535.
4. Wang, S., et al. 2022. Canonical and noncanonical regulatory roles for JAK2 in the pathogenesis of rheumatoid arthritis-associated interstitial lung disease and idiopathic pulmonary fibrosis. FASEB J. 36: e22336.
5. Zhang, M., et al. 2023. Rapamycin improves Graves' orbitopathy by suppressing $CD4^+$ cytotoxic T lymphocytes. JCI Insight 8: e160377.

RESEARCH USE

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