SANTA CRUZ BIOTECHNOLOGY, INC.

CD3 (PC3/188A): sc-20047

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The T cell antigen receptor (TCR) recognizes foreign antigens and translates such recognition events into intracellular signals that elicit a change in the cell from a dormant to an activated state. Much of this signaling process can be attributed to a multisubunit complex of proteins that associates directly with the TCR. This complex has been designated CD3 (cluster of differentiation 3). It is composed of five invariant polypeptide chains that associate to form three dimers: a heterodimer of gamma and epsilon chains (γε), a heterodimer of δ and ε chains (δε) and a homodimer of two ζ chains (ζζ) or a heterodimer of ζ and η chains (ζη). The ζ and η chains are encoded by the same gene but differ in their carboxyl-terminal ends due to an alternative splicing event. The γ, δ and ε chains each contain a single copy of a conserved immunoreceptor tyrosine-based activation motif (ITAM). In contrast, the ζ chain contains three consecutive copies of the same motif. Phosphorylated ITAMs act as docking sites for protein kinases such as ZAP-70 and Syk and are also capable of regulating their kinase activity. The crystal structure of the ZAP-70 SH2 domains bound to the ζ chain ITAMs has been solved.

REFERENCES

1. Exley, M., et al. 1991. Structure, assembly and intracellular transport of the T cell receptor for antigen. Semin. Immunol. 3: 283-297.
2. Weiss, A., et al. 1991. Signal transduction by the T cell antigen receptor. Semin. Immunol. 3: 313-324.

SOURCE

CD3 (PC3/188A) is a mouse monoclonal antibody raised against synthetic peptide spanning amino acids 156-168 of the cytoplasmic domain of human CD3-ε chain.

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.

CD3 (PC3/188A) is available conjugated to agarose (sc-20047 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-20047 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-20047 PE), fluorescein (sc-20047 FITC), Alexa Fluor® 488 (sc-20047 AF488), Alexa Fluor® 546 (sc-20047 AF546), Alexa Fluor® 594 (sc-20047 AF594) or Alexa Fluor® 647 (sc-20047 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-20047 AF680) or Alexa Fluor® 790 (sc-20047 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, CD3 (PC3/188A) is available conjugated to biotin (sc-20047 B), 200 µg/ml, for WB, IHC(P) and ELISA; and to Alexa Fluor® 405 (sc-20047 AF405, 200 µg/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

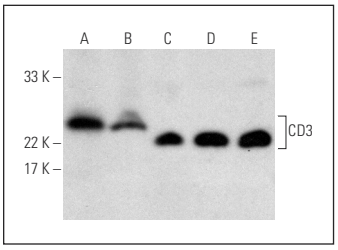
CD3 (PC3/188A) is recommended for detection of CD3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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 CD3 siRNA (h): sc-29987, CD3 siRNA (m): sc-29988, CD3 shRNA Plasmid (h): sc-29987-SH, CD3 shRNA Plasmid (m): sc-29988-SH, CD3 shRNA (h) Lentiviral Particles: sc-29987-V and CD3 shRNA (m) Lentiviral Particles: sc-29988-V.

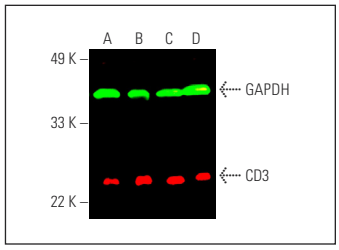
Molecular Weight of CD3: 25 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, CCRF-CEM cell lysate: sc-2225 or MOLT-4 cell lysate: sc-2233.

DATA



CD3 (PC3/188A) HRP: sc-20047 HRP. Direct western blot analysis of CD3 expression in CTLL-2 (**A**), TK-1 (**B**), MOLT-4 (**C**), Jurkat (**D**) and CCRF-CEM (**E**) whole cell lysates.



Simultaneous direct near-infrared western blot analysis of CD3 expression, detected with CD3 (PC3/188A) Alexa Fluor® 790: sc-20047 AF790 and GAPDH expression, detected with GAPDH (G-9) Alexa Fluor® 680: sc-365062 AF680 in MOLT-4 (**A**), Jurkat (**B**), ALL-SIL (**C**) and SUP-T1 (**D**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Singh, A.K., et al. 2003. Lipopolysaccharide (LPS) induced activation of the immune system in control rats and rats chronically exposed to a low level of the organothiophosphate insecticide, acephate. Toxicol. Ind. Health 19: 93-108.
2. Larimer, B.M., et al. 2017. Granzyme B PET imaging as a predictive biomarker of immunotherapy response. Cancer Res. 77: 2318-2327.
3. Kovacevic, M.M., et al. 2018. Galectin-3 deficiency enhances type 2 immune cell-mediated myocarditis in mice. Immunol. Res. 66: 491-502.
4. Roballo, K.C.S. and Bushman, J. 2019. Evaluation of the host immune response and functional recovery in peripheral nerve autografts and allografts. Transpl. Immunol. 53: 61-71.
5. Chai, Y., et al. 2020. Evaluation of decellularization protocols for production of porcine small intestine submucosa for use in abdominal wall reconstruction. Hernia 24: 1221-1231.

RESEARCH USE

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