SANTA CRUZ BIOTECHNOLOGY, INC.

CD3 (PS1): sc-59013

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 γ and ε 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, ε and δ 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 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 (PS1) is a mouse monoclonal antibody raised against a prokaryotic fusion protein corresponding to the ε chain of CD3 of human origin.

PRODUCT

Each vial contains 250 µl culture supernatant containing IgG_{2a} with < 0.1% sodium azide.

APPLICATIONS

CD3 (PS1) is recommended for detection of CD3 of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:50), immunoprecipitation [10-200 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:50) and immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:10-1:50).

CD3 (PS1) is also recommended for detection of CD3 in additional species, including canine.

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.

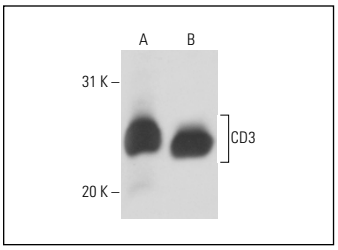
Molecular Weight of CD3: 25 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, HeLa whole cell lysate: sc-2200 or MOLT-4 cell lysate: sc-2233.

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.

DATA



CD3 (PS1): sc-59013. Western blot analysis of CD3 expression in MOLT-4 (**A**) and Jurkat (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Cao, W., et al. 2008. Expression of LMP-1 and cyclin D1 protein is correlated with an unfavorable prognosis in nasal type NK/T cell lymphoma. Mol. Med. Rep. 1: 363-368.
2. Jin, G., et al. 2014. Xanthoceraside rescues learning and memory deficits through attenuating β-Amyloid deposition and Tau hyperphosphorylation in APP mice. Neurosci. Lett. 573: 58-63.
3. Albini, P.T., et al. 2014. Advanced atherosclerosis is associated with increased medial degeneration in sporadic ascending aortic aneurysms. Atherosclerosis 232: 361-368.
4. Alam, M.S., et al. 2015. Selective inhibition of the p38 alternative activation pathway in infiltrating T cells inhibits pancreatic cancer progression. Nat. Med. 21: 1337-1343.
5. Ino, Y., et al. 2019. Reliable evaluation of tumor-infiltrating lymphocytes in pancreatic cancer tissue biopsies. Oncotarget 10: 1149-1159.
6. Zhang, R., et al. 2021. Retinoblastoma cell-derived Twist protein promotes regulatory T cell development. Cancer Immunol. Immunother. 70: 1037-1048.
7. Wang, Q., et al. 2022. Circadian protein CLOCK modulates regulatory B cell functions of nurses engaging day-night shift rotation. Cell. Signal. 96: 110362.

RESEARCH USE

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