

CD3 (F7.2.38): sc-59010

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 ($\gamma\epsilon$), a heterodimer of δ and ϵ chains ($\delta\epsilon$) and a homodimer of two ζ chains ($\zeta\zeta$) or a heterodimer of ζ and η chains ($\zeta\eta$). 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's 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 (F7.2.38) is a mouse monoclonal antibody raised against full length native CD3 of human origin.

PRODUCT

Each vial contains 250 μ l culture supernatant containing IgG₁ with < 0.1% sodium azide.

APPLICATIONS

CD3 (F7.2.38) is recommended for detection of CD3 of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunoprecipitation [1-2 μ l per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:10-1:200) and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:10-1:200).

Suitable for use as control antibody for CD3 siRNA (h): sc-29987, CD3 shRNA Plasmid (h): sc-29987-SH and CD3 shRNA (h) Lentiviral Particles: sc-29987-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.

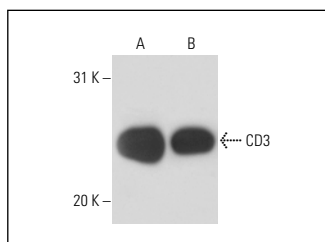
RESEARCH USE

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

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 (F7.2.38): sc-59010. Western blot analysis of CD3 expression in MOLT-4 (A) and Jurkat (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Monego, G., et al. 2010. Parathyroid hormone-related peptide and parathyroid hormone-related peptide receptor type 1 expression in human lung adenocarcinoma. *Chest* 137: 898-908.
2. Yang, B., et al. 2013. Blocking transforming growth factor- β signaling pathway augments antitumor effect of adoptive NK-92 cell therapy. *Int. Immunopharmacol.* 17: 198-204.
3. Tang, B., et al. 2014. Activation of glioma cells generates immune tolerant NKT cells. *J. Biol. Chem.* 289: 34595-34600.
4. Liu, H., et al. 2015. Specific growth inhibition of ErbB2-expressing human breast cancer cells by genetically modified NK-92 cells. *Oncol. Rep.* 33: 95-102.
5. Lu, D., et al. 2017. A vitamin D receptor agonist converts CD4⁺ T cells to Foxp3⁺ regulatory T cells in patients with ulcerative colitis. *Oncotarget* 8: 53552-53562.
6. Ma, L., et al. 2022. Multiregional single-cell dissection of tumor and immune cells reveals stable lock-and-key features in liver cancer. *Nat. Commun.* 13: 7533.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.



See **CD3 (PC3/188A): sc-20047** for CD3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.