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 delta and epsilon chains (δε) and a homodimer of two zeta chains (ζζ) or a heterodimer of zeta and eta 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.

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 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Available as phycoerythrin (sc-20047 PE) or fluorescein (sc-20047 FITC) conjugates for flow cytometry, 100 tests.

Available as Alexa Fluor® 405 (sc-20047 AF405), Alexa Fluor® 488 (sc-20047 AF488) or Alexa Fluor® 647 (sc-20047 AF647) conjugates for flow cytometry or immunofluorescence; 100 µg/2 ml.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

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.

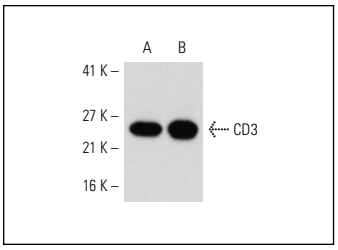
Molecular Weight of CD3: 25 kDa.

Positive Controls: CTLL-2 cell lysate: sc-2242, CD3-ε (h): 293T Lysate: sc-116055 or TK-1 whole cell lysate.

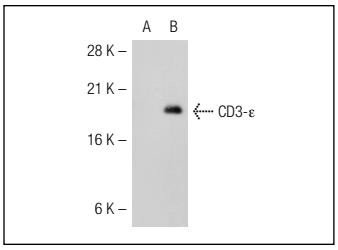
STORAGE

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

DATA



CD3 (PC3/188A): sc-20047. Western blot analysis of CD3 expression in CTLL-2 (**A**) and TK-1 (**B**) whole cell lysates.



CD3 (PC3/188A): sc-20047. Western blot analysis of CD3-ε expression in non-transfected: sc-117752 (**A**) and human CD3-ε transfected: sc-116055 (**B**) 293T whole cell lysates.

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. von Messling, V., et al. 2004. Tropism illuminated: lymphocyte-based pathways blazed by lethal morbillivirus through the host immune system. Proc. Natl. Acad. Sci. USA 39: 14216-14221.
3. He, Y.F., et al. 2004. Blocking programmed death-1 ligand-PD-1 interactions by local gene therapy results in enhancement of antitumor effect of secondary lymphoid tissue chemokine. J. Immunol. 173: 4919-4928.
4. Debnath, I., et al. 2007. Defining *in vivo* transcription factor complexes of the murine CD21 and CD23 genes. J. Immunol. 178: 7139-7150.
5. Gómez-Nicola, D., et al. 2008. Role of IL-15 in spinal cord and sciatic nerve after chronic constriction injury: regulation of macrophage and T-cell infiltration. J. Neurochem. 107: 1741-1752.
6. Giannopoulou, M., et al. 2008. Hepatocyte growth factor exerts its anti-inflammatory action by disrupting nuclear factor-κB signaling. Am. J. Pathol. 173: 30-41.
7. Pillet, S., et al. 2009. Canine distemper virus selectively inhibits apoptosis progression in infected immune cells. J. Virol. 83: 6279-6287.
8. Das Sarma, J., et al. 2009. Mechanisms of primary axonal damage in a viral model of multiple sclerosis. J. Neurosci. 29: 10272-10280.
9. Doherty, L.F., et al. 2011. Regulation of tryptophan 2,3-dioxygenase by HOXA10 enhances embryo viability through serotonin signaling. Am. J. Physiol. Endocrinol. Metab. 300: E86-E93.

RESEARCH USE

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