SANTA CRUZ BIOTECHNOLOGY, INC.

CD3-ζ (3F67): sc-70617

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 multi-subunit 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 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.
3. Chan, A.C., et al. 1994. The role of protein tyrosine kinases and protein tyrosine phosphatases in cell antigen receptor signal transduction. Semin. Immunol. 12: 555-592.

CHROMOSOMAL LOCATION

Genetic locus: CD3Z (human) mapping to 1q24.2; Cd3z (mouse) mapping to 1 H2.3.

SOURCE

CD3-ζ (3F67) is a mouse monoclonal antibody raised against amino acids 89-105 mapping within a cytoplasmic domain of CD3-ζ 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.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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

APPLICATIONS

CD3-ζ (3F67) is recommended for detection of CD3-ζ 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-ζ siRNA (h): sc-29245, CD3-ζ/η siRNA (m): sc-42754, CD3-ζ shRNA Plasmid (h): sc-29245-SH, CD3-ζ/η shRNA Plasmid (m): sc-42754-SH, CD3-ζ shRNA (h) Lentiviral Particles: sc-29245-V and CD3-ζ/η shRNA (m) Lentiviral Particles: sc-42754-V.

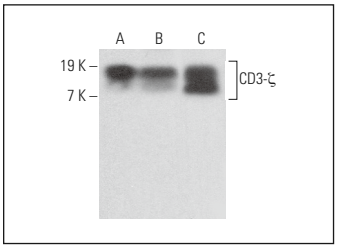
Molecular Weight of CD3-ζ: 22 kDa.

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

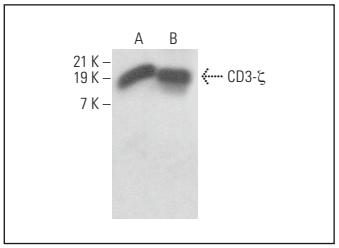
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



CD3-ζ (3F67): sc-70617. Western blot analysis of CD3-ζ expression in Jurkat (**A**), SUP-T1 (**B**) and ALL-SIL (**C**) whole cell lysates.



CD3-ζ (3F67): sc-70617. Western blot analysis of CD3-ζ expression in MOLT-4 (**A**) and CCRF-CEM (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Chae, H.D., et al. 2010. RhoH regulates subcellular localization of ZAP-70 and Lck in T cell receptor signaling. PLoS ONE 5: e13970.

CONJUGATES

See **CD3-ζ (6B10.2): sc-1239** for CD3-ζ antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.