SANTA CRUZ BIOTECHNOLOGY, INC.

p-CD3-ζ (C415.9A): sc-9975

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, 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's SH2 domains bound to the ζ chain ITAMs has been solved.

CHROMOSOMAL LOCATION

Genetic locus: CD247 (human) mapping to 1q24.2.

SOURCE

p-CD3-ζ (C415.9A) is a mouse monoclonal antibody raised against amino acids 52-163 mapping within the cytoplasmic domain of CD3-ζ precursor 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.

p-CD3-ζ (C415.9A) is available conjugated to agarose (sc-9975 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-9975 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-9975 PE), fluorescein (sc-9975 FITC), Alexa Fluor® 488 (sc-9975 AF488), Alexa Fluor® 546 (sc-9975 AF546), Alexa Fluor® 594 (sc-9975 AF594) or Alexa Fluor® 647 (sc-9975 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-9975 AF680) or Alexa Fluor® 790 (sc-9975 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

p-CD3-ζ (C415.9A) is recommended for detection of phosphorylated CD3-ζ of 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)], flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

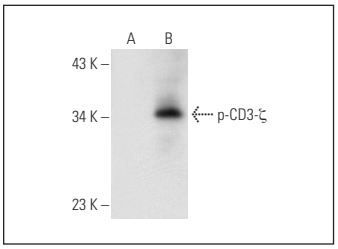
Suitable for use as control antibody for CD3-ζ siRNA (h): sc-29245, CD3-ζ shRNA Plasmid (h): sc-29245-SH and CD3-ζ shRNA (h) Lentiviral Particles: sc-29245-V.

Molecular Weight of p-CD3-ζ: 22 kDa.

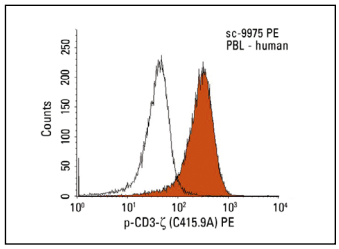
STORAGE

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

DATA



p-CD3-ζ (C415.9A): sc-9975. Western blot analysis of CD3-ζ phosphorylation in non-transfected: sc-117752 (**A**) and human CD3-ζ transfected: sc-173169 (**B**) 293T whole cell lysates.



p-CD3-ζ (C415.9A) PE: sc-9975 PE. Intracellular FCM analysis of fixed and permeabilized human peripheral blood leukocytes. Black line histogram represents the isotype control, normal mouse IgG_1-PE: sc-2866.

SELECT PRODUCT CITATIONS

1. Cruz-Munoz, M.E., et al. 2003. The CD43 coreceptor molecule recruits the ζ-chain as part of its signaling pathway. J. Immunol. 171: 1901-1908.
2. Paccani, S.R., et al. 2005. Defective Vav expression and impaired F-Actin reorganization in a subset of patients with common variable immunodeficiency characterized by T-cell defects. Blood 106: 626-634.
3. Eleftheriadis, T., et al. 2006. Major histocompatibility complex class I restricted T-cell autoreactivity in human peripheral blood mononuclear cells. Cell. Immunol. 240: 62-67.
4. Morgenroth, A., et al. 2007. Targeting of tumor cells expressing the prostate stem cell antigen (PSCA) using genetically engineered T-cells. Prostate 67: 1121-1131.
5. Lee, H.S., et al. 2008. CEACAM1 dynamics during *Neisseria gonorrhoeae* suppression of $CD4^+$ T lymphocyte activation. J. Immunol. 180: 6827-6835.
6. Ku, L.T., et al. 2009. Alterations of T cell activation signalling and cytokine production by postmenopausal estrogen levels. Immun. Ageing 6: 1.
7. Kasic, T., et al. 2011. Modulation of human T-cell functions by reactive nitrogen species. Eur. J. Immunol. 41: 1843-1849.
8. Li, L., et al. 2017. Ionic CD3-Lck interaction regulates the initiation of T-cell receptor signaling. Proc. Natl. Acad. Sci. USA 114: E5891-E5899.
9. Eleftheriadis, T., et al. 2017. Urate crystals directly activate the T-cell receptor complex and induce T-cell proliferation. Biomed. Rep. 7: 365-369.
10. Lu, Y., et al. 2018. Th9 cells represent a unique subset of $CD4^+$ T cells endowed with the ability to eradicate advanced tumors. Cancer Cell 33: 1048-1060.

RESEARCH USE

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