

CD3- ζ (H146-968): sc-101411

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 zeta and eta 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 the ZAP-70 SH2 domains bound to the ζ chain ITAMs has been solved.

REFERENCES

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- Weiss, A., et al. 1991. Signal transduction by the T cell antigen receptor. *Semin. Immunol.* 3: 313-324.
- 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.
- Aoe, T., et al. 1994. Different cytoplasmic structure of the CD3- ζ family dimer modulates the activation signal and function of T cells. *Int. Immunol.* 6: 1671-1679.
- Ohno, H., et al. 1994. Targeted disruption of the CD3- η locus causes high lethality in mice: modulation of Oct-1 transcription on the opposite strand. *EMBO J.* 13: 1157-1165.
- Neumeister, E.N., et al. 1995. Binding of ZAP-70 to phosphorylated T-cell receptor ζ and η enhances its autophosphorylation and generates specific binding sites for SH2 domain-containing proteins. *Mol. Cell. Biol.* 15: 3171-3178.

CHROMOSOMAL LOCATION

Genetic locus: CD247 (human) mapping to 1q24.2; Cd247 (mouse) mapping to 1 H2.3.

SOURCE

CD3- ζ (H146-968) is a Armenian hamster monoclonal antibody raised against a synthetic peptide corresponding to amino acids 151-164 of CD3- ζ of mouse origin.

STORAGE

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

PRODUCT

Each vial contains 200 μ g IgG₂ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD3- ζ (H146-968) is available conjugated to either phycoerythrin (sc-101411 PE) or fluorescein (sc-101411 FITC), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

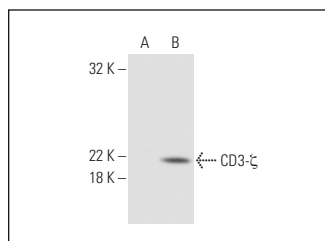
CD3- ζ (H146-968) is recommended for detection of CD3- ζ mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 μ g per 1 x 10⁶ 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/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.

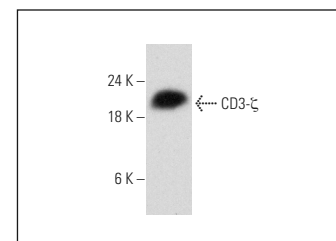
Molecular Weight of CD3- ζ : 22 kDa.

Positive Controls: CD3- ζ (h2): 293T Lysate: sc-173169, Jurkat whole cell lysate: sc-2204 or BW5147 cell lysate: sc-3800.

DATA



CD3- ζ (H146-968): sc-101411. Western blot analysis of CD3- ζ expression in non-transfected: sc-117752 (A) and human CD3- ζ transfected: sc-173169 (B) 293T whole cell lysates.



CD3- ζ (H146-968): sc-101411. Western blot analysis of CD3- ζ expression in BW5147 whole cell lysate.

SELECT PRODUCT CITATIONS

- Romagnoli, P. and Bron, C. 1999. Defective TCR signaling events in glycosylphosphatidylinositol-deficient T cells derived from paroxysmal nocturnal hemoglobinuria patients. *Int. Immunol.* 11: 1411-1422.
- Mingueneau, M., et al. 2008. The proline-rich sequence of CD3 ϵ controls T cell antigen receptor expression on and signaling potency in preselection CD4⁺CD8⁺ thymocytes. *Nat. Immunol.* 9: 522-532.
- Ridolfi, L., et al. 2013. Adjuvant immunotherapy with tumor infiltrating lymphocytes and interleukin-2 in patients with resected stage III and IV melanoma. *J. Immunother.* 26: 156-162.

RESEARCH USE

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