



p-CD3- ζ (96.Tyr 111): sc-135759

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 , 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.

REFERENCES

1. Exley, M., Terhorst, C. and Wileman, T. 1991. Structure, assembly and intracellular transport of the T cell receptor for antigen. *Semin. Immunol.* 3: 283-297.
2. Weiss, A., Irving, B.A., Tan, L.K. and Koretzky, G.A. 1991. Signal transduction by the T cell antigen receptor. *Semin. Immunol.* 3: 313-324.
3. Chan, A.C., Desai, D.M. and Weiss, A. 1994. The role of protein tyrosine kinases and protein tyrosine phosphatases in cell antigen receptor signal transduction. *Annu. Rev. Immunol.* 12: 555-592.
4. Aoe, T., Goto, S., Ohno, H. and Saito, T. 1994. Different cytoplasmic structure of the CD3- ζ family dimer modulates the activation signal and function of T cells. *Intl. Immunol.* 6: 1671-1679.
5. Ohno, H., Goto, S., Takai, S., Shirasawa, T., Nakano, H., Miyatake, S., Aoe, T., Ishida, Y., Maeda, H., Shirai, T., et al. 1994. Targeted disruption of the CD3- ϵ locus causes high lethality in mice: modulation of Oct-1 transcription on the opposite strand. *EMBO J.* 13: 1157-1165.
6. Neumeister, E.N., Zhu, Y., Rochard, S., Terhorst, C., Chan, A.C. and Shaw, A.S. 1995. Binding of ZAP-70 to phosphorylated T-cell receptor ζ and ϵ enhances its autophosphorylation and generates specific binding sites for SH2 domain-containing proteins. *Mol. Cell. Biol.* 15: 3171-3178.
7. Weiss, A. 1995. Zapping tandem SH2 domains. *Nature* 377: 17-18.

CHROMOSOMAL LOCATION

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

SOURCE

p-CD3- ζ (96.Tyr 111) is a mouse monoclonal antibody raised against a short amino acid sequence containing phosphorylated Tyr 111 of CD3- ζ of human origin.

PRODUCT

Each vial contains 200 μ g IgG κ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-CD3- ζ (96.Tyr 111) is recommended for detection of Tyr 111 phosphorylated CD3- ζ of 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)] 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.

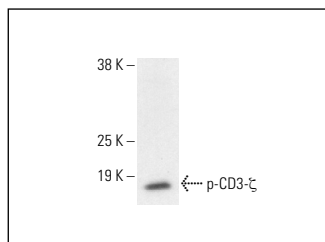
Molecular Weight of p-CD3- ζ : 22 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



p-CD3- ζ (96.Tyr 111): sc-135759. Western blot analysis of CD3- ζ phosphorylation in HeLa whole cell lysate. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

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. Not for resale.

PROTOCOLS

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