

CD3- ζ (E-3): sc-166435

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 ($\gamma\epsilon$), 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 , 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.

CHROMOSOMAL LOCATION

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

SOURCE

CD3- ζ (E-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 137-163 at the C-terminus of CD3- ζ of human origin.

PRODUCT

Each vial contains 200 μ g IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-166435 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

CD3- ζ (E-3) is recommended for detection of CD3- ζ of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

CD3- ζ (E-3) is also recommended for detection of CD3- ζ in additional species, including canine, bovine and porcine.

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.

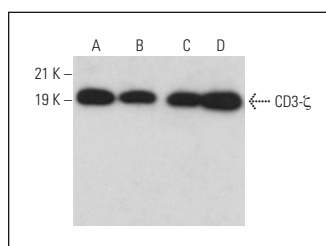
Molecular Weight of CD3- ζ : 22 kDa.

Positive Controls: CD3- ζ (h): 293T Lysate: sc-114150, Jurkat whole cell lysate: sc-2204 or MOLT-4 cell lysate: sc-2233.

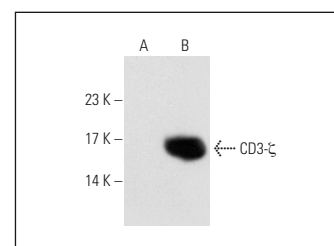
RECOMMENDED SUPPORT REAGENTS

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, 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-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



CD3- ζ (E-3): sc-166435. Western blot analysis of CD3- ζ expression in Jurkat (A), SUP-T1 (B), CCRF-CEM (C) and MOLT-4 (D) whole cell lysates. Detection reagent used: m-IgG κ BP-HRP: sc-516102.



CD3- ζ (E-3): sc-166435. Western blot analysis of CD3- ζ expression in non-transfected: sc-117752 (A) and human CD3- ζ transfected: sc-114150 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Long, A.H., et al. 2015. 4-1BB costimulation ameliorates T cell exhaustion induced by tonic signaling of chimeric antigen receptors. *Nat. Med.* 21: 581-590.
- Sangsuwannukul, T., et al. 2020. Anti-tumour effect of the fourth-generation chimeric antigen receptor T cells targeting CD133 against cholangiocarcinoma cells. *Int. Immunopharmacol.* 89: 107069.
- Phanthaphol, N., et al. 2021. Chimeric antigen receptor T cells targeting Integrin $\alpha\beta6$ expressed on cholangiocarcinoma cells. *Front. Oncol.* 11: 657868.
- Stornaiuolo, A., et al. 2021. Characterization and functional analysis of CD44v6.CAR T cells endowed with a new LNGFR-based spacer. *Hum. Gene Ther.* E-published.

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.



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.