SANTA CRUZ BIOTECHNOLOGY, INC.

ZAP-70 (SBZAP): sc-56970

BACKGROUND

The activation of T lymphocytes by antigens is mediated by the T cell receptor (TCR) which is a multisubunit complex assembled from at least six different genes. The TCR subunits include the Ti α and β chains, the CD3 γ, δ and ε chains and a ζ-containing homodimer or heterodimer. The disulfide-linked Ti α-β heterodimer is responsible for antigen recognition, but the short five amino acid cytoplasmic domains of Ti α and β are unlikely to be sufficient to couple to intracellular signaling pathways. In contrast, the structured features of the CD3 and ζ subunits suggest a role in signal transduction. Of these, the ζ chain, which is expressed as either a homodimer or heterodimer, has a short extracellular domain of only nine amino acids, but a larger 113 amino acid cytoplasmic domain. A tyrosine phosphoprotein, ZAP-70, has been identified that associates with ζ and undergoes tyrosine phosphorylation following TCR stimulation.

REFERENCES

1. Clevers, H., et al. 1988. The T cell receptor/CD3 complex: a dynamic protein ensemble. Annu. Rev. Immunol. 6: 629-662.
2. Baniyash, M., et al. 1988. Disulfide linkage of the ζ and η chains of the T cell receptor. Possible identification of two structural classes of receptors. J. Biol. Chem. 263: 9874-9878.
3. Baniyash, M., et al. 1988. The T cell antigen receptor ζ chain is tyrosine phosphorylated upon activation. J. Biol. Chem. 263: 18225-18230.
4. Baniyash, M., et al. 1989. The isolation and characterization of the murine T cell antigen receptor ζ chain gene. J. Biol. Chem. 264: 13252-13257.
5. Frank, S.J., et al. 1990. The structure and signaling function of the invariant T cell receptor components. Semin. Immunol. 2: 89-97.
6. Clayton, L.K., et al. 1991. CD3 η and CD3 ζ are alternatively spliced products of a common genetic locus and are transcriptionally and/or postranscriptionally regulated during T cell development. Proc. Natl. Acad. Sci. USA 88: 5202-5206.
7. Chan, A.C., et al. 1991. The TCR ζ chain is associated with a tyrosine kinase and upon T cell antigen receptor stimulation associates with ZAP-70, a 70-kDa tyrosine phosphoprotein. Proc. Natl. Acad. Sci. USA 88: 9166-9170.
8. Chan, A.C., et al. 1992. ZAP-70: a 70 kDa protein-tyrosine kinase that associates with the TCR ζ chain. Cell 71: 649-662.

CHROMOSOMAL LOCATION

Genetic locus: ZAP70 (human) mapping to 2q11.2; Zap70 (mouse) mapping to 1 B.

SOURCE

ZAP-70 (SBZAP) is a mouse monoclonal antibody raised against amino acids 280-309 of ZAP-70 of human 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 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ZAP-70 (SBZAP) is recommended for detection of ZAP-70 of mouse 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)] and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for ZAP-70 siRNA (h): sc-29526, ZAP-70 siRNA (m): sc-36867, ZAP-70 shRNA Plasmid (h): sc-29526-SH, ZAP-70 shRNA Plasmid (m): sc-36867-SH, ZAP-70 shRNA (h) Lentiviral Particles: sc-29526-V and ZAP-70 shRNA (m) Lentiviral Particles: sc-36867-V.

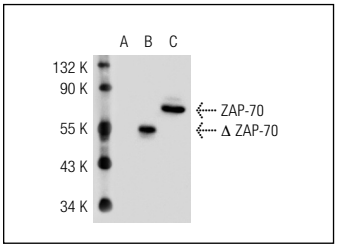
Molecular Weight of ZAP-70: 70 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, ZAP-70 (h): 293T Lysate: sc-116483 or CCRF-CEM cell lysate: sc-2225.

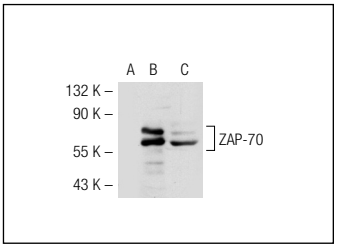
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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



ZAP-70 (SBZAP): sc-56970. Western blot analysis of ZAP-70 expression in non-transfected 293T: sc-117752 (**A**), truncated human ZAP-70 transfected 293T: sc-114635 (**B**) and Jurkat (**C**) whole cell lysates.



ZAP-70 (SBZAP): sc-56970. Western blot analysis of ZAP-70 expression in non-transfected 293T: sc-117752 (**A**), human ZAP-70 transfected 293T: sc-116483 (**B**) and CCRF-CEM (**C**) whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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