SANTA CRUZ BIOTECHNOLOGY, INC.

ZAP-70 (G-4): sc-17760

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 5 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 9 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. 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.

CHROMOSOMAL LOCATION

Genetic locus: ZAP70 (human) mapping to 2q11.2.

SOURCE

ZAP-70 (G-4) is a mouse monoclonal antibody raised against amino acids 253-304 of ZAP-70 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.

ZAP-70 (G-4) is available conjugated to phycoerythrin (sc-17760 PE), 200 µg/ml, for IF, IHC(P) and FCM.

APPLICATIONS

ZAP-70 (G-4) is recommended for detection of ZAP-70 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 ZAP-70 siRNA (h): sc-29526, ZAP-70 shRNA Plasmid (h): sc-29526-SH and ZAP-70 shRNA (h) Lentiviral Particles: sc-29526-V.

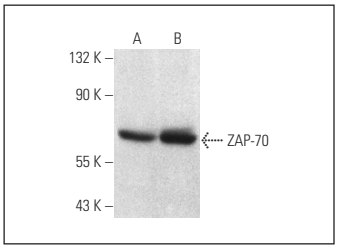
Molecular Weight of ZAP-70: 70 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, Jurkat whole cell lysate: sc-2204 or MOLT-4 cell lysate: sc-2233.

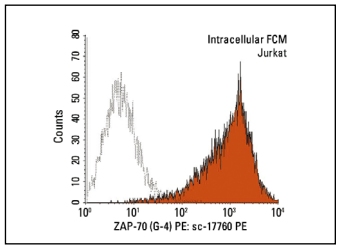
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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



ZAP-70 (G-4): sc-17760. Western blot analysis of ZAP-70 expression in Jurkat (**A**) and MOLT-4 (**B**) whole cell lysates.



ZAP-70 (G-4) PE: sc-17760 PE. Intracellular FCM analysis of fixed and permeabilized Jurkat cells. Black line histogram represents the isotype control, normal mouse IgG_1-PE: sc-2866.

SELECT PRODUCT CITATIONS

1. Kondo, T., et al. 2001. Dendritic cells signal T cells in the absence of exogenous antigen. Nat. Immunol. 2: 932-938.
2. Zhang, W., et al. 2003. Negative regulation of T cell antigen receptor-mediated Crk-L-C3G signaling and cell adhesion by Cbl-β. J. Biol. Chem. 278: 23978-23983.
3. Slack, G.W., et al. 2007. Flow cytometric detection of ZAP-70 in chronic lymphocytic leukemia: correlation with immunocytochemistry and Western blot analysis. Arch. Pathol. Lab. Med. 131: 50-56.

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.

PROTOCOLS

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

CONJUGATES

See **ZAP-70 (1E7.2): sc-32760** for ZAP-70 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.