

# ZAP-70 (7): sc-293085

## 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 T $\alpha$  and T $\beta$  chains, the CD3  $\gamma$ ,  $\delta$  and  $\epsilon$  chains and a  $\zeta$ -containing homodimer or heterodimer. The disulfide-linked T $\alpha$ -T $\beta$  heterodimer is responsible for antigen recognition, but the short five amino acid cytoplasmic domains of T $\alpha$  and T $\beta$  are unlikely to be sufficient to couple to intracellular signaling pathways. In contrast, the structured features of the CD3 and  $\zeta$  subunits suggest a role in signal transduction. Of these, the  $\zeta$  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  $\zeta$  and undergoes tyrosine phosphorylation following TCR stimulation.

## REFERENCES

- Clevers, H., et al. 1988. The T cell receptor/CD3 complex: a dynamic protein ensemble. *Annu. Rev. Immunol.* 6: 629-662.
- Baniyash, M., et al. 1988. Disulfide linkage of the  $\zeta$  and  $\eta$  chains of the T cell receptor. Possible identification of two structural classes of receptors. *J. Biol. Chem.* 263: 9874-9878.
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- Baniyash, M., et al. 1989. The isolation and characterization of the murine T cell antigen receptor  $\zeta$  chain gene. *J. Biol. Chem.* 264: 13252-13257.
- Frank, S.J., et al. 1990. The structure and signaling function of the invariant T cell receptor components. *Semin. Immunol.* 2: 89-97.
- Clayton, L.K., et al. 1991. CD3  $\eta$  and CD3  $\zeta$  are alternatively spliced products of a common genetic locus and are transcriptionally and/or post-transcriptionally regulated during T cell development. *Proc. Natl. Acad. Sci. USA* 88: 5202-5206.
- Chan, A.C., et al. 1991. The TCR  $\zeta$  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.
- Chan, A.C., et al. 1992. ZAP-70: a 70 kd protein-tyrosine kinase that associates with the TCR  $\zeta$  chain. *Cell* 71: 649-662.

## CHROMOSOMAL LOCATION

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

## SOURCE

ZAP-70 (7) is a mouse monoclonal antibody raised against amino acids 316-325 of ZAP-70 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG $_1$  kappa light chain in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

ZAP-70 (7) is recommended for detection of ZAP-70 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)].

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.

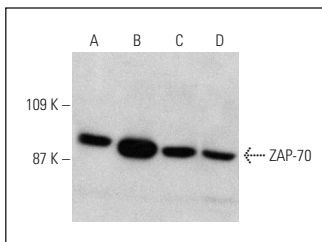
Molecular Weight of ZAP-70: 70 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211, CCRF-CEM cell lysate: sc-2225 or MOLT-4 cell lysates: sc-2233.

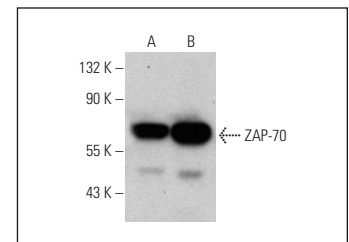
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



ZAP-70 (7): sc-293085. Western blot analysis of ZAP-70 expression in RAW 264.7 (A), CTLL-2 (B), BYDP (C) and RBL-1 (D) whole cell lysates.



ZAP-70 (7): sc-293085. Western blot analysis of ZAP-70 expression in CCRF-CEM (A) and MOLT-4 (B) whole cell lysates.

## 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.



See **ZAP-70 (1E7.2): sc-32760** for ZAP-70 antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647.