

# TCR $\beta$ (A-15): sc-31277

## 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. TCR is a heterodimer composed of either  $\alpha$  and  $\beta$  or  $\gamma$  and  $\delta$  chains. The vast majority of circulating T cells (95%) express the  $\alpha/\beta$  heterodimer while roughly 2-5% express the  $\gamma/\delta$  heterodimer. Recognizing such a variety of antigens requires diverse specificities in the TCR repertoire. This is obtained by the somatic recombination of variable (V), diversity (D) and joining (J) gene segments in the assembly of each TCR chain. The TCR  $\beta$  and  $\gamma$  chain genes lie in distinct loci, while the genes encoding the TCR  $\alpha$  and  $\delta$  chains comprise a single locus. During T cell development, the  $\beta$  chain is synthesized by first joining a D segment with a J segment, then adding a V segment with the D-J gene, and later a C segment. Genetic mutations involving the T cell receptor  $\beta$  locus have been associated with T cell lymphomas.

## REFERENCES

- Maddon, P.J., et al. 1987. Structure and expression of human and mouse T4 genes. Proc. Natl. Acad. Sci. USA 84: 9155-9159.
- Arthos, J., et al. 1989. Identification of the residues in human CD4 critical for the binding of HIV. Cell 57: 469-481.
- Healey, D., et al. 1990. Novel anti-CD4 monoclonal antibodies separate human immunodeficiency virus infection and fusion of CD4<sup>+</sup> cells from virus binding. J. Exp. Med. 172: 1233-1242.
- Weiss, A., et al. 1991. Signal transduction by the T cell antigen receptor. Semin. Immunol. 3: 313-324.
- Allison, J.P., et al. 1991. The immuno-biology of T cells with invariant  $\gamma/\delta$  antigen receptors. Annu. Rev. Immunol. 9: 679-705.
- Julius, M., et al. 1993. Distinct roles for CD4 and CD8 as co-receptors in antigen receptor signalling. Immunol. Today 14: 177-183.

## CHROMOSOMAL LOCATION

Genetic locus: TRBC1 (human) mapping to 7p22.3; Tcrb (mouse) mapping to 6 B1.

## SOURCE

TCR  $\beta$  (A-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of TCR  $\beta$  of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-31277 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

TCR  $\beta$  (A-15) is recommended for detection of TCR  $\beta$  of human and, to a lesser extent, mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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).

Suitable for use as control antibody for TCR  $\beta$  siRNA (h): sc-36629, TCR  $\beta$  siRNA (m): sc-36630, TCR  $\beta$  shRNA Plasmid (h): sc-36629-SH, TCR  $\beta$  shRNA Plasmid (m): sc-36630-SH, TCR  $\beta$  shRNA (h) Lentiviral Particles: sc-36629-V and TCR  $\beta$  shRNA (m) Lentiviral Particles: sc-36630-V.

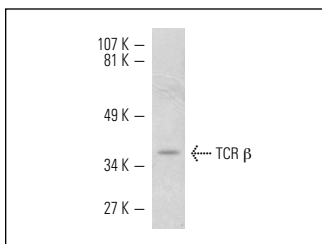
Molecular Weight of TCR  $\beta$ : 39 kDa.

Positive Controls: MOLT-4 cell lysate: sc-2233 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 donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



TCR  $\beta$  (A-15): sc-31277. Western blot analysis of TCR  $\beta$  expression in mouse PBL whole cell lysate.

## RESEARCH USE

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



Try **TCR  $\beta$  (G-11): sc-5277**, our highly recommended monoclonal alternative to TCR  $\beta$  (A-15). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **TCR  $\beta$  (G-11): sc-5277**.