

# TCR V $\beta$ 4 (KT4): sc-53476

## 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

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2. Behlke, M.A., et al. 1987. Expression of a murine polyclonal T cell receptor marker correlates with the use of specific members of the V  $\beta$  8 gene segment subfamily. *J. Exp. Med.* 165: 257-262.
3. Ito, M., et al. 1987. Methods for the selection and growth of antigen-specific cytolytic T lines and clones bearing a defined T cell receptor  $\beta$  chain marker. *J. Immunol. Methods* 103: 229-237.
4. Mokyr, M.B., et al. 1993. Involvement of TCR V  $\beta$  8.3<sup>+</sup> cells in the cure of mice bearing a large MOPC-315 tumor by low dose melphalan. *J. Immunol.* 151: 4838-4846.
5. Formby, B., et al. 1993. T cell vaccination against autoimmune diabetes in nonobese diabetic mice. *Ann. Clin. Lab. Sci.* 23: 137-147.
6. Dieli, F., et al. 1994. Dominant V  $\beta$  8 gene usage in response to TNP: failure to use other V  $\beta$  chains following removal of V  $\beta$  8<sup>+</sup> T cells by monoclonal antibody *in vivo*. *Immunology* 82: 99-105.
7. Bleux, C., et al. 1995. A mouse monoclonal antibody specific for the V  $\beta$  5.3 chain of the human TcR recognizes a subgroup of the mouse TcR V  $\beta$  8.2 chains. *J. Leukoc. Biol.* 57: 491.

## SOURCE

TCR V  $\beta$  4 (KT4) is a rat monoclonal antibody raised against TCR V  $\beta$  4 of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2b</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TCR V  $\beta$  4 (KT4) is available conjugated to either phycoerythrin (sc-53476 PE) or fluorescein (sc-53476 FITC), 200  $\mu$ g/ml, for IF, IHC(P) and FCM.

## APPLICATIONS

TCR V  $\beta$  4 (KT4) is recommended for detection of TCR V  $\beta$  4 of mouse origin by flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells).

Molecular Weight of TCR V  $\beta$  4: 34 kDa.

## 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](http://www.scbt.com) for detailed protocols and support products.