

TCR (H57-597): sc-18904

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 α and β or γ and δ chains. The vast majority of circulating T cells (95%) express the α/β heterodimer while roughly 2-5% express the γ/δ heterodimer. CD3 chains and the CD4 or CD8 coreceptors are also required for efficient signal transduction through the TCR. The TCR is expressed on T helper and T cytotoxic cells that can be distinguished by their expression of CD4 and CD8. T helper cells express CD4 proteins and T cytotoxic cells display CD8. CD4 is also expressed on cortical cells, mature medullary thymocytes, microglial cells and dendritic cells. CD4, also designated T4 and Leu 3, is a membrane glycoprotein that contains four extracellular immunoglobulin-like domains. The TCR, in association with CD4, can bind class II MHC molecules presented by the antigen-presenting cells. The CD4 protein functions by increasing the avidity of the interaction between the TCR and an antigen-class II MHC complex.

REFERENCES

1. Maddon, P.J., et al. 1987. Structure and expression of human and mouse T4 genes. *Proc. Natl. Acad. Sci. USA* 84: 9155-9159.
2. Arthos, J., et al. 1989. Identification of the residues in human CD4 critical for the binding of HIV. *Cell* 57: 469-481.
3. Healey, D., et al. 1990. Novel anti-CD4 monoclonal antibodies separate human immunodeficiency virus infection and fusion of CD4⁺ cells from virus binding. *J. Exp. Med.* 172: 1233-1242.
4. Weiss, A., et al. 1991. Signal transduction by the T cell antigen receptor. *Semin. Immunol.* 3: 313-324.
5. Allison, J.P. and Havran, W.L. 1991. The immunobiology of T cells with invariant γ/δ antigen receptors. *Annu. Rev. Immunol.* 9: 679-705.
6. Julius, M., et al. 1993. Distinct roles for CD4 and CD8 as co-receptors in antigen receptor signalling. *Immunol. Today* 14: 177-183.
7. Ehrlich, E.W., et al. 1993. T cell receptor interaction with peptide/major histocompatibility complex (MHC) and superantigen/MHC ligands is dominated by antigen. *J. Exp. Med.* 178: 713-722.

SOURCE

TCR (H57-597) is a Armenian hamster monoclonal antibody raised against affinity purified murine T cell receptor.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for stimulation of T cells, sc-18904 L, 200 μ g/0.1 ml.

TCR (H57-597) is available conjugated to either phycoerythrin (sc-18904 PE) or fluorescein (sc-18904 FITC), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM.

RESEARCH USE

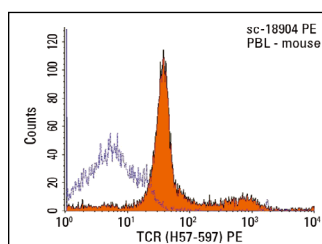
For research use only, not for use in diagnostic procedures.

APPLICATIONS

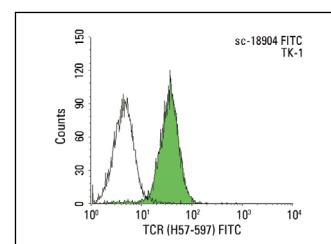
TCR (H57-597) is recommended for detection of a common epitope of the β chain of the T cell Receptor (TCR) complex on α/β TCR expressing T lymphocytes and thymocytes of mouse origin by immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 μ g per 1 x 10⁶ cells); non cross-reactive with γ/δ TCR-bearing T cells.

Molecular Weight of TCR: 39 kDa.

DATA



TCR (H57-597) PE: sc-18904 PE. FCM analysis of mouse peripheral blood leukocytes. Black line histogram represents the isotype control, normal Armenian hamster IgG-PE: sc-2875.



TCR (H57-597): sc-18904. Indirect FCM analysis of TK-1 cells stained with TCR (H57-597), followed by FITC-conjugated goat anti-Armenian hamster IgG-FITC: sc-2446. Black line histogram represents the isotype control, normal Armenian hamster: sc-3886.

SELECT PRODUCT CITATIONS

1. Tenbrock, K., et al. 2005. The cyclic AMP response element modulator regulates transcription of the TCR ζ -chain. *J. Immunol.* 175: 5975-5980.
2. Amon, M.A., et al. 2006. Lipidation and glycosylation of a T cell antigen receptor (TCR) transmembrane hydrophobic peptide dramatically enhances *in vitro* and *in vivo* function. *Biochim. Biophys. Acta* 1763: 879-888.
3. Lee, J.H., et al. 2018. Differences between immunodeficient mice generated by classical gene targeting and CRISPR/Cas9-mediated gene knock-out. *Transgenic Res.* 27: 241-251.

STORAGE

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

PROTOCOLS

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