

TCR (KJ12-98): sc-65738

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 co-receptors 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

- Maddon, P.J., Molineaux, S.M., Maddon, D.E., Zimmerman, K.A., Godfrey, M., Alt, F.W., Chess, L. and Axel, R. 1987. Structure and expression of human and mouse T4 genes. *Proc. Natl. Acad. Sci. USA* 84: 9155-9159.
- Arthos, J., Deen, K.C., Chaikin, M.A., Fornwald, J.A., Sathe, G., Sattentau, Q.J., Clapham, P.R., Weiss, R.A., McDougal, J.S. and Pietropaolo, C. 1989. Identification of the residues in human CD4 critical for the binding of HIV. *Cell* 57: 469-481.
- Healey, D., Dianda, L., Moore, J.P., McDougal, J.S., Moore, M.J., Estess, P., Buck, D., Kwong, P.D., Beverley, P.C. and Sattentau, Q.J. 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.
- Weiss, A., Irving, B.A., Tan, L.K. and Koretzky, G.A. 1991. Signal transduction by the T cell antigen receptor. *Semin. Immunol.* 3: 313-324.
- 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.
- Julius, M., Maroun, C.R. and Haughn, L. 1993. Distinct roles for CD4 and CD8 as co-receptors in antigen receptor signalling. *Immunol. Today* 14: 177-183.
- Ehrlich, E.W., Devaux, B., Rock, E.P., Jorgensen, J.L., Davis, M.N. and Chien, Y.H. 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.
- Vignali, D.A. 1994. The interaction between CD4 and MHC class II molecules and its effect on T cell function. *Behring Inst. Mitt.* 94: 133-147.

SOURCE

TCR (KJ12-98) is a mouse monoclonal antibody raised against T cell hybridoma 3DT-52.5 of mouse origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for blocking T cell receptor on the hybridoma 3DT-52.5, sc-65738 L, 200 μ g/0.1 ml.

APPLICATIONS

TCR (KJ12-98) is recommended for detection of 3DT-52.5 T-cell receptors of mouse origin by immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and flow cytometry (1 μ g per 1×10^6 cells).

Molecular Weight of TCR: 39 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

- Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

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.