SANTA CRUZ BIOTECHNOLOGY, INC.

TCR α/β (WT31): sc-20078

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The Power to Question

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 immunoglobin-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., et al. 1991. The immuno-biology 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. Ehrich, 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.
8. 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.

CHROMOSOMAL LOCATION

Genetic locus: TRA (human) mapping to 14p13.

SOURCE

TCR α/β (WT31) is a mouse monoclonal antibody raised against thymocytes of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TCR α/β (WT31) is available conjugated to agarose (sc-20078 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-20078 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-20078 PE), fluorescein (sc-20078 FITC), Alexa Fluor® 488 (sc-20078 AF488), Alexa Fluor® 546 (sc-20078 AF546), Alexa Fluor® 594 (sc-20078 AF594) or Alexa Fluor® 647 (sc-20078 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-20078 AF680) or Alexa Fluor® 790 (sc-20078 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

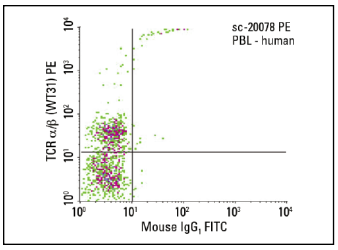
APPLICATIONS

TCR α/β (WT31) is recommended for detection of the conformational epitope formed by T cell receptor (TCR) for antigen and the CD3 ε chain of human origin by flow cytometry (1 µg per 1 x 10^6 cells).

Molecular Weight of TCR α: 34 kDa

Molecular Weight of TCR β: 39 kDa.

DATA



TCR α/β (WT31) PE: sc-20078 PE. FCM analysis of human peripheral blood leukocytes. Quadrant markers were set based on the isotype control, normal mouse IgG_1-PE: sc-2866.

SELECT PRODUCT CITATIONS

1. Parsons, M.S., et al. 2010. Distinct phenotype of unrestricted cytotoxic T lymphocytes from human immunodeficiency virus-infected individuals. J. Clin. Immunol. 30: 272-279.

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.