

TCR β (G-11): sc-5277

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 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.

SOURCE

TCR β (G-11) is a mouse monoclonal antibody raised against the constant region of TCR β of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TCR β (G-11) is available conjugated to agarose (sc-5277 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5277 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5277 PE), fluorescein (sc-5277 FITC), Alexa Fluor[®] 488 (sc-5277 AF488), Alexa Fluor[®] 546 (sc-5277 AF546), Alexa Fluor[®] 594 (sc-5277 AF594) or Alexa Fluor[®] 647 (sc-5277 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-5277 AF680) or Alexa Fluor[®] 790 (sc-5277 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

TCR β (G-11) is recommended for detection of TCR β of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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), immunohistochemistry (including paraffin-embedded sections) (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 β siRNA (h): sc-36629, TCR β shRNA Plasmid (h): sc-36629-SH and TCR β shRNA (h) Lentiviral Particles: sc-36629-V.

Molecular Weight of TCR β : 39 kDa.

Positive Controls: human tonsil tissue extract: sc-364263, MOLT-4 cell lysate: sc-2233 or CCRF-CEM cell lysate: sc-2225.

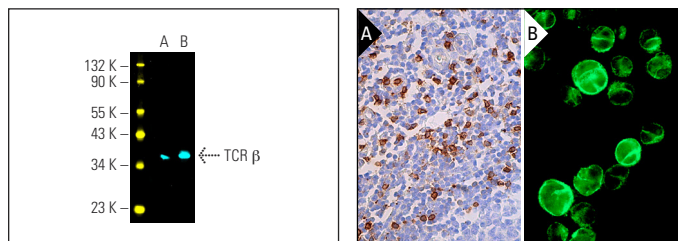
RESEARCH USE

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

STORAGE

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

DATA



TCR β (G-11) Alexa Fluor[®] 647: sc-5277 AF647. Direct fluorescent western blot analysis of TCR β expression in MOLT-4 (A) and CCRF-CEM (B) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Cruz Marker[™] Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor[®] 488: sc-516790.

TCR β (G-11): sc-5277. Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing membrane and cytoplasmic staining of subset of cells in non-germinal center (A). Immunofluorescence staining of methanol-fixed CCRF-CEM cells showing membrane staining (B).

SELECT PRODUCT CITATIONS

- Dadi, H.K., et al. 2003. Effect of CD3 δ deficiency on maturation of α/β and γ/δ T-cell lineages in severe combined immunodeficiency. *N. Engl. J. Med.* 349: 1821-1828.
- Morgan, N.V., et al. 2011. Mutation in the TCR α subunit constant gene (TRAC) leads to a human immunodeficiency disorder characterized by a lack of TCR $\alpha\beta^+$ T cells. *J. Clin. Invest.* 121: 695-702.
- Hirai, Y., et al. 2012. Hydroa vacciniforme is associated with increased numbers of Epstein-Barr virus-infected $\gamma\delta$ T cells. *J. Invest. Dermatol.* 132: 1401-1408.
- Piotrowski, J.T., et al. 2013. WASH knockout T cells demonstrate defective receptor trafficking, proliferation, and effector function. *Mol. Cell. Biol.* 33: 958-973.
- Tomita, S., et al. 2015. Genomic and immunohistochemical profiles of enteropathy-associated T-cell lymphoma in Japan. *Mod. Pathol.* 28: 1286-1296.
- Kinosada, H., et al. 2017. HTLV-1 bZIP factor enhances T-cell proliferation by impeding the suppressive signaling of co-inhibitory receptors. *PLoS Pathog.* 13: e1006120.
- Uemura, Y., et al. 2018. Expression of activating natural killer-cell receptors is a hallmark of the innate-like T-cell neoplasm in peripheral T-cell lymphomas. *Cancer Sci.* 109: 1254-1262.
- Chen, Y., et al. 2022. Cholesterol inhibits TCR signaling by directly restricting TCR-CD3 core tunnel motility. *Mol. Cell* 82: 1278-1287.e5.

PROTOCOLS

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

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