

TCR α (H-1): sc-515719

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., et al. 1987. Structure and expression of human and mouse T4 genes. *Proc. Natl. Acad. Sci. USA* 84: 9155-9159.
- Arthos, J., et al. 1989. Identification of the residues in human CD4 critical for the binding of HIV. *Cell* 57: 469-481.
- 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.

CHROMOSOMAL LOCATION

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

SOURCE

TCR α (H-1) is a mouse monoclonal antibody raised against amino acids 1-142 mapping within the constant region of TCR α of human 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.

TCR α (H-1) is available conjugated to agarose (sc-515719 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515719 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515719 PE), fluorescein (sc-515719 FITC), Alexa Fluor[®] 488 (sc-515719 AF488), Alexa Fluor[®] 546 (sc-515719 AF546), Alexa Fluor[®] 594 (sc-515719 AF594) or Alexa Fluor[®] 647 (sc-515719 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-515719 AF680) or Alexa Fluor[®] 790 (sc-515719 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

TCR α (H-1) is recommended for detection of TCR α C region of human origin by Western Blotting (starting dilution 1:100, 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 α siRNA (h): sc-36626, TCR α shRNA Plasmid (h): sc-36626-SH and TCR α shRNA (h) Lentiviral Particles: sc-36626-V.

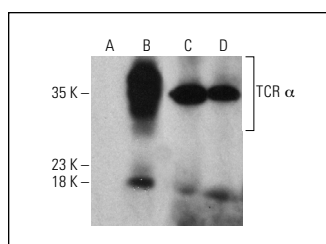
Molecular Weight of TCR α : 34 kDa.

Positive Controls: TCR α (h): 293T Lysate: sc-111693, human thyroid extract: sc-363782 or human spleen extract: sc-363779.

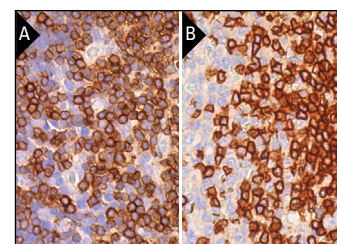
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



TCR α (H-1) HRP: sc-515719 HRP. Direct western blot analysis of TCR α expression in non-transfected: sc-117752 (A) and human TCR α transfected: sc-111693 (B) 293T whole cell lysates and human thymus (C) and human spleen (D) tissue extracts.



TCR α (H-1): sc-515719. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thymus tissue showing membrane and cytoplasmic staining of cortical cells and medullary cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing membrane and cytoplasmic staining of cells in white pulp and cells in red pulp (B).

SELECT PRODUCT CITATIONS

- Baeuerle, P.A., et al. 2019. Synthetic TRuC receptors engaging the complete T cell receptor for potent anti-tumor response. *Nat. Commun.* 10: 2087.

RESEARCH USE

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