SANTA CRUZ BIOTECHNOLOGY, INC.

CD45RA (OX33): sc-53048

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The Power to Question

BACKGROUND

CD45R, also designated CD45 and PTPRC, has been identified as a transmembrane glycoprotein, broadly expressed among hematopoietic cells. Multiple isoforms of CD45R are distributed throughout the immune system according to cell type. These isoforms arise because of alternative splicing of exons 4, 5, and 6. The corresponding protein domains are characterized by the binding of monoclonal antibodies specific for CD45RA (exon 4), CD45RB (exon 5), CD45RC (exon 6) and CD45RO (exons 4 to 6 spliced out). The variation in these isoforms is localized to the extracellular domain of CD45R, while the intracellular domain is conserved. CD45R functions as a phosphotyrosine phosphatase, a vital component for efficient tyrosine phosphorylation induction by the TCR/CD3 complex. The tyrosine phosphatase activity of CD45R is contained within the conserved intracellular domain. Src and Syk family protein tyrosine kinases are utilized by the TCR/CD3 complex to initiate signaling cascades. Several members of these two families, including Lck, Fyn and ZAP-70, have been implicated as physiological substrates of CD45R.

REFERENCES

1. Woollett, G.R., et al. 1985. Molecular and antigenic heterogeneity of the rat leukocyte-common antigen from thymocytes and T and B lymphocytes. Eur. J. Immunol. 15: 168-173.
2. West, K.P., et al. 1986. The demonstration of B cell, T cell and myeloid antigens in paraffin sections. J. Pathol. 150: 89-101.
3. Streuli, M., et al. 1987. Differential usage of three exons generates at least five different mRNAs encoding human leukocyte common antigens. J. Exp. Med. 166: 1548.
4. Hall, P.A., et al. 1987. New marker of B lymphocytes, MB2: comparison with other lymphocyte subset markers active in conventionally processed tissue sections. J. Clin. Pathol. 40: 151.

CHROMOSOMAL LOCATION

Genetic locus: PTPRC (human) mapping to 1q31.3; Ptprc (mouse) mapping to 1 E4.

SOURCE

CD45RA (OX33) is a mouse monoclonal antibody raised against full length CD45RA of rat origin.

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.

CD45RA (OX33) is available conjugated to agarose (sc-53048 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-53048 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53048 PE), fluorescein (sc-53048 FITC), Alexa Fluor® 488 (sc-53048 AF488), Alexa Fluor® 546 (sc-53048 AF546), Alexa Fluor® 594 (sc-53048 AF594) or Alexa Fluor® 647 (sc-53048 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53048 AF680) or Alexa Fluor® 790 (sc-53048 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

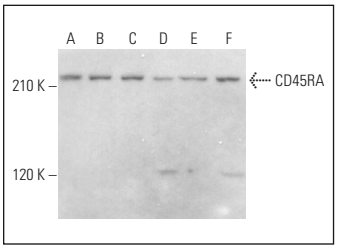
CD45RA (OX33) is recommended for detection of a subfraction of the 240 kDa CD45RA of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CD45 siRNA (h): sc-29251, CD45 siRNA (m): sc-35001, CD45 shRNA Plasmid (h): sc-29251-SH, CD45 shRNA Plasmid (m): sc-35001-SH, CD45 shRNA (h) Lentiviral Particles: sc-29251-V and CD45 shRNA (m) Lentiviral Particles: sc-35001-V.

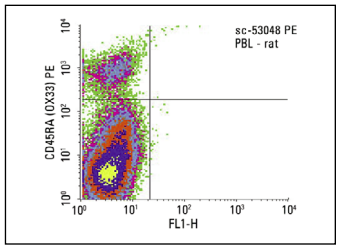
Molecular Weight of CD45RA: 180-220 kDa.

Positive Controls: SUP-T1 whole cell lysate: sc-364796, TK-1 whole cell lysate: sc-364798 or MM-142 cell lysate: sc-2246.

DATA



CD45RA (OX33): sc-53048. Western blot analysis of CD45RA expression in SUP-T1 (**A**), KNRK (**B**), MM-142 (**C**), TK-1 (**D**), GA-10 (**E**) and CCRF-CEM (**F**) whole cell lysates.



CD45RA (OX33): sc-53048. Indirect FCM analysis of rat peripheral blood leukocytes stained CD45RA (OX33), followed by PE-conjugated goat anti-mouse IgG: sc-3738. Quadrant markers were set based on the isotype control, normal mouse IgG_1: sc-3877.

SELECT PRODUCT CITATIONS

1. Zschemisch, N.H., et al. 2012. Zinc-finger nuclease mediated disruption of Rag1 in the LEW/Ztm rat. BMC Immunol. 13: 60.
2. Wu, F., et al. 2022. Timing of splenectomy after acute spinal cord injury. eNeuro 9: ENEURO.0440-21.2021.

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.