SANTA CRUZ BIOTECHNOLOGY, INC.

CD45 (35-Z6): sc-1178

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

CD45 has been identified as a transmembrane glycoprotein, broadly expressed among hematopoietic cells. Multiple isoforms of CD45 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 CD45, while the intracellular domain is conserved. CD45 functions as a phosphotyrosine phosphatase, a vital component for efficient tyrosine phosphorylation induction by the TCR/CD3 complex. The tyrosine phosphatase activity of CD45 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 CD45.

REFERENCES

1. Trowbridge, I.S. 1978. Interspecies spleen-myeloma hybrid producing monoclonal antibodies against mouse lymphocyte surface glycoprotein, T200. J. Exp. Med. 148: 313-323.
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.

CHROMOSOMAL LOCATION

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

SOURCE

CD45 (35-Z6) is a mouse monoclonal antibody within an extracellular domain of CD45 of human 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.

CD45 (35-Z6) is available conjugated to agarose (sc-1178 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-1178 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-1178 PE), fluorescein (sc-1178 FITC), Alexa Fluor® 488 (sc-1178 AF488), Alexa Fluor® 546 (sc-1178 AF546), Alexa Fluor® 594 (sc-1178 AF594) or Alexa Fluor® 647 (sc-1178 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-1178 AF680) or Alexa Fluor® 790 (sc-1178 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, CD45 (35-Z6) is available conjugated to Alexa Fluor® 405 (sc-1178 AF405), 100 µg/2 ml, for IF, IHC(P) and FCM.

STORAGE

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

APPLICATIONS

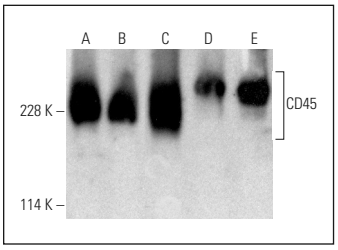
CD45 (35-Z6) is recommended for detection of CD45 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

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.

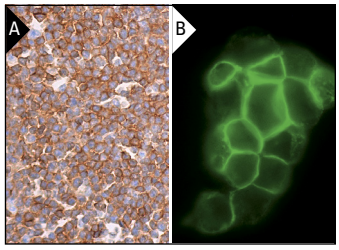
Molecular Weight of CD45: 180-220 kDa.

Positive Controls: Ramos cell lysate: sc-2216, Jurkat whole cell lysate: sc-2204 or CCRF-CEM cell lysate: sc-2225.

DATA



CD45 (35-Z6) HRP: sc-1178 HRP. Direct western blot analysis of CD45 expression in Jurkat (**A**), CCRF-CEM (**B**), BJAB (**C**), Ramos (**D**) and NAMALWA (**E**) whole cell lysates.



CD45 (35-Z6): sc-1178. 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 (**A**). Immunofluorescence staining of methanol-fixed Jurkat cells showing membrane localization (**B**).

SELECT PRODUCT CITATIONS

1. Pirila, E., et al. 2001. *In vivo* localization of gelatinases (MMP-2 and -9) by *in situ* zymography with a selective gelatinase inhibitor. Biochem. Biophys. Res. Commun. 287: 766-774.
3. Zhang, L., et al. 2018. Thioredoxin-1 protects bone marrow-derived mesenchymal stromal cells from hyperoxia-induced injury *in vitro*. Oxid. Med. Cell. Longev. 2018: 1023025.
4. Balzamino, B.O., et al. 2019. Changes in vitreal protein profile and retina mRNAs in Reeler mice: NGF, IL33 and Müller cell activation. PLoS ONE 14: e0212732.
4. Zarei-Kheirabadi, M., et al. 2020. Protocol for purification and culture of astrocytes: useful not only in 2 days postnatal but also in adult rat brain. Mol. Biol. Rep. 47: 1783-1794.
5. Whyte, M.L., et al. 2021. The roseoloviruses downregulate the protein tyrosine phosphatase PTPRC (CD45). J. Virol. 95: e0162820.

RESEARCH USE

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