SANTA CRUZ BIOTECHNOLOGY, INC.

CD45 (2D-1): sc-1187

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.

CHROMOSOMAL LOCATION

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

SOURCE

CD45 (2D-1) is a mouse monoclonal antibody derived from hybridization of mouse NS-1 myeloma cells with spleen cells from BALB/c mice immunized with human peripheral blood mononuclear cells (PBMCs).

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 (2D-1) is available conjugated to agarose (sc-1187 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-1187 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-1187 PE), fluorescein (sc-1187 FITC), Alexa Fluor® 488 (sc-1187 AF488), Alexa Fluor® 546 (sc-1187 AF546), Alexa Fluor® 594 (sc-1187 AF594) or Alexa Fluor® 647 (sc-1187 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-1187 AF680) or Alexa Fluor® 790 (sc-1187 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, CD45 (2D-1) is available conjugated to APC-Cy7 (sc-1187 APCC7), 100 tests in 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.

PROTOCOLS

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

APPLICATIONS

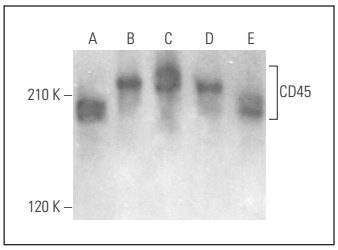
CD45 (2D-1) is recommended for detection of CD45, CD45RO, CD45A, CD45B and all forms of LCA of mouse, rat and human origin by immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (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.

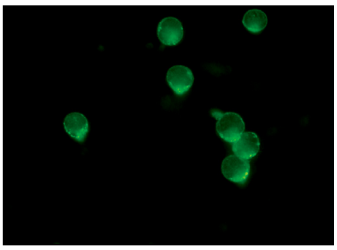
Molecular Weight of CD45: 180-220 kDa.

Positive Controls: Ramos cell lysate: sc-2216, CCRF-CEM cell lysate: sc-2225 or BJAB whole cell lysate: sc-2207.

DATA



CD45 (2D-1): sc-1187. Western blot analysis of CD45 expression in CCRF-CEM (**A**), BJAB (**B**), GA-10 (**C**), Ramos (**D**) and HL-60 (**E**) whole cell lysates.



CD45 (2D-1): sc-1187. Immunofluorescence staining of methanol-fixed CCRF-CEM cells showing membrane staining.

SELECT PRODUCT CITATIONS

1. Booth, A.M., et al. 2006. Exosomes and HIV Gag bud from endosome-like domains of the T cell plasma membrane. J. Cell Biol. 172: 923-935.
2. Xu, Z., et al. 2016. H2B ubiquitination regulates meiotic recombination by promoting chromatin relaxation. Nucleic Acids Res. 44: 9681-9697.
3. Namiri, M., et al. 2018. Improving the biological function of decellularized heart valves through integration of protein tethering and three-dimensional cell seeding in a bioreactor. J. Tissue Eng. Regen. Med. 12: e1865-e1879.
4. Notarangelo, M., et al. 2019. Ultrasensitive detection of cancer biomarkers by nickel-based isolation of polydisperse extracellular vesicles from blood. EBioMedicine 43: 114-126.
5. Huang, J., et al. 2020. Amniotic fluid mesenchymal stromal cells from early stages of embryonic development have higher self-renewal potential. In Vitro Cell. Dev. Biol. Anim. 56: 701-714.
6. Huang, J., et al. 2021. MiR-351-3p promotes rat amniotic fluid-derived mesenchymal stromal cell proliferation via targeting the coding sequence of Abca4. Stem Cells 39: 1192-1206.

RESEARCH USE

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