SANTA CRUZ BIOTECHNOLOGY, INC.

CD45 (MB4B4): sc-21739

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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.
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: 1548-1566.
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: 151-156.
5. Poppema, S., et al. 1987. Monoclonal antibodies (MT1, MT2, MB1, MB2, MB3) reactive with leukocyte subsets in paraffin-embedded tissue sections. Am. J. Pathol. 127: 418-429.

CHROMOSOMAL LOCATION

Genetic locus: Ptprc (mouse) mapping to 1 E4.

SOURCE

CD45 (MB4B4) is a rat monoclonal antibody raised against anti-immunoglobulin activated mouse B lymphoblasts.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD45 (MB4B4) is available conjugated to either phycoerythrin (sc-21739 PE) or fluorescein (sc-21739 FITC), 200 µg/ml, for IF, IHC(P) and FCM.

In addition, CD45 (MB4B4) is available conjugated to APC-Cy7 (sc-21739 APCC7), 100 tests in 2 ml, for IF, IHC(P) and FCM.

APPLICATIONS

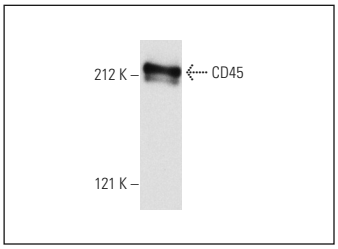
CD45 (MB4B4) is recommended for detection of CD45 of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

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

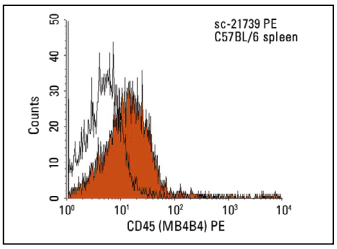
Molecular Weight of CD45: 180-220 kDa.

Positive Controls: WEHI-231 whole cell lysate: sc-2213, TK-1 whole cell lysate: sc-364798 or BYDP whole cell lysate: sc-364368.

DATA



CD45 (MB4B4): sc-21739. Western blot analysis of CD45 expression in BYDP whole cell lysate.



CD45 (MB4B4) PE: sc-21739 PE. FCM analysis of C57BL/6 mouse splenocytes. Black line histogram represents the isotype control: normal rat IgG_{2a}-PE, sc-2872.

SELECT PRODUCT CITATIONS

1. Garcia, G.G., et al. 2005. Age-associated changes in glycosylation of CD43 and CD45 on mouse CD4 T cells. Eur. J. Immunol. 35: 622-631.
2. Garcia, G.G., et al. 2007. Age-related defects in Moesin/Ezrin cytoskeletal signals in mouse CD4 T cells. J. Immunol. 179: 6403-6409.
3. Geng, X.C., et al. 2015. Erythropoietin ameliorates renal interstitial fibrosis via the inhibition of fibrocyte accumulation. Mol. Med. Rep. 11: 3860-3865.

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.

CONJUGATES

See **CD45 (35-Z6): sc-1178** for CD45 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.