SANTA CRUZ BIOTECHNOLOGY, INC.

# CD45 (I3/2.3): sc-52491

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 (mouse) mapping to 1 E4.

## SOURCE

CD45 (I3/2.3) is a rat monoclonal antibody raised against CD45 of rat origin.

## PRODUCT

Each vial contains 200 µg $IgG_{2b}$ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD45 (I3/2.3) is available conjugated to either phycoerythrin (sc-52491 PE) or fluorescein (sc-52491 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

## APPLICATIONS

CD45 (I3/2.3) 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.

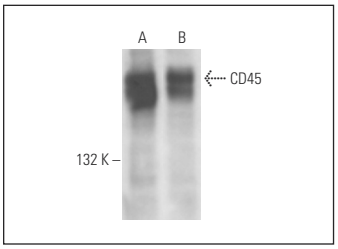
Molecular Weight of CD45: 180-220 kDa.

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

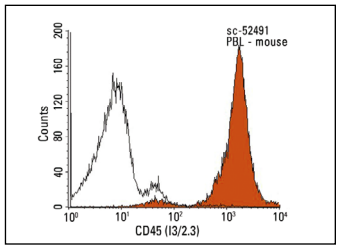
## STORAGE

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

## DATA




CD45 (I3/2.3): sc-52491. Western blot analysis of CD45 expression in BYDP (**A**) and TK-1 (**B**) whole cell lysates.




CD45 (I3/2.3): sc-52491. Indirect FCM analysis of mouse peripheral blood leukocytes stained with CD45 (I3/2.3), followed by PE-conjugated goat anti-rat IgG: sc-3740. Black line histogram represents the isotype control, normal rat $IgG_{2b}$: sc-3884.

## SELECT PRODUCT CITATIONS


1. Graf, B., et al. 2007. LFA-1-mediated T cell costimulation through increased localization of TCR/class II complexes to the central supramolecular activation cluster and exclusion of CD45 from the immunological synapse. J. Immunol. 179: 1616-1624.
2. Bouma, G., et al. 2011. Cytoskeletal remodeling mediated by WASp in dendritic cells is necessary for normal immune synapse formation and T-cell priming. Blood 118: 2492-2501.
3. Cho, J.H., et al. 2016. CD45-mediated control of TCR tuning in naïve and memory $CD8^+$ T cells. Nat. Commun. 7: 13373.
4. Li, S., et al. 2018. Ectodysplasin A regulates epithelial barrier function through Sonic hedgehog signalling pathway. J. Cell. Mol. Med. 22: 230-240.
5. Li, S., et al. 2018. Sleep deprivation disrupts the lacrimal system and induces dry eye disease. Exp. Mol. Med. 50: e451.
6. Bu, J., et al. 2019. Hyperlipidemia induces meibomian gland dysfunction. Ocul. Surf. 17: 777-786.
7. Bu, J., et al. 2021. High-fat diet induces inflammation of meibomian gland. Invest. Ophthalmol. Vis. Sci. 62: 13.
8. Ji, C., et al. 2021. Inhibition of ceramide *de novo* synthesis ameliorates meibomian gland dysfunction induced by SCD1 deficiency. Ocul. Surf. 22: 230-241.


## 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.