

# CD45 (OX30): sc-53047

## 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 (mouse) mapping to 1 E4.

## SOURCE

CD45 (OX30) is a mouse monoclonal antibody raised against lymph node glycoproteins and cells of rat origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD45 (OX30) is available conjugated to agarose (sc-53047 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53047 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53047 PE), fluorescein (sc-53047 FITC), Alexa Fluor® 488 (sc-53047 AF488), Alexa Fluor® 546 (sc-53047 AF546), Alexa Fluor® 594 (sc-53047 AF594) or Alexa Fluor® 647 (sc-53047 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53047 AF680) or Alexa Fluor® 790 (sc-53047 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

CD45 (OX30) is recommended for detection of a monomorphic determinant of CD45 of mouse and rat 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<sup>6</sup> 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.

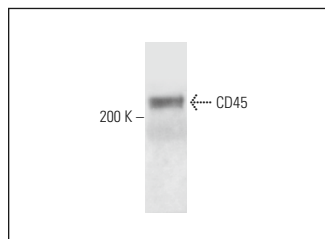
Molecular Weight of CD45: 180-220 kDa.

Positive Controls: rat PBL whole cell lysate.

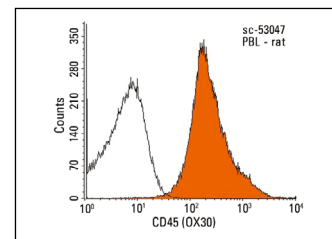
## STORAGE

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

## DATA



CD45 (OX30): sc-53047. Western blot analysis of CD45 expression in rat PBL whole cell lysate.



CD45 (OX30): sc-53047. Indirect FCM analysis of rat peripheral blood leukocytes stained with CD45 (OX30), followed by PE-conjugated goat anti-mouse IgG: sc-3738. Black line histogram represents the isotype control, normal mouse IgG<sub>2a</sub>: sc-3878.

## SELECT PRODUCT CITATIONS

- Hadrup, N., et al. 2012. Subacute oral toxicity investigation of nanoparticulate and ionic silver in rats. *Arch. Toxicol.* 86: 543-551.
- Liu, J., et al. 2016. Necroptosis induced by Ad-HGF activates endogenous c-Kit<sup>+</sup> cardiac stem cells and promotes cardiomyocyte proliferation and angiogenesis in the infarcted aged heart. *Cell. Physiol. Biochem.* 40: 847-860.
- Manzanares, M.Á., et al. 2017. Transforming growth factors  $\alpha$  and  $\beta$  are essential for modeling cholangiocarcinoma desmoplasia and progression in a three-dimensional organotypic culture model. *Am. J. Pathol.* 187: 1068-1092.
- Surikow, S.Y., et al. 2018. Nitrosative stress as a modulator of inflammatory change in a model of Takotsubo syndrome. *JACC Basic Transl. Sci.* 3: 213-226.
- Benetti, F., et al. 2019. *In vivo* analysis of the presence of heme oxygenase-1, transcription factor Jun-D and CD90<sup>+</sup>/CD73<sup>+</sup>/CD105<sup>+</sup>/CD45<sup>-</sup> cells in the pulp of bleached teeth. *Int. Endod. J.* 52: 1723-1737.
- Zhao, M., et al. 2020. The role and potential mechanism of p75NTR in mineralization via *in vivo* p75NTR knockout mice and *in vitro* ectomesenchymal stem cells. *Cell Prolif.* 53: e12758.
- Sikora, M., et al. 2021. Bone marrow stromal cells (BMSCs CD45<sup>-</sup>/CD44<sup>+</sup>/CD73<sup>+</sup>/CD90<sup>+</sup>) isolated from osteoporotic mice SAM/P6 as a novel model for osteoporosis investigation. *J. Cell. Mol. Med.* 25: 6634-6651.
- Sikora, M., et al. 2023. MiR-21-5p regulates the dynamic of mitochondrial network and rejuvenates the senile phenotype of bone marrow stromal cells (BMSCs) isolated from osteoporotic SAM/P6 mice. *Stem Cell Res. Ther.* 14: 54.

## RESEARCH USE

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