BOSTER BIOLOGICAL TECHNOLOGY
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Anti-CD45/PTPRC Antibody Picoband®

Catalog Number: PB9096

About PTPRC

CD45 (Cluster of Differentiation 45), also known as PTPRC, LCA or CD45R, is an enzyme that, in humans, is encoded by the PTPRC gene. CD45 is a member of the protein tyrosine phosphatase (PTP) family. CD45 is a major high molecular mass leukocyte cell surface molecule which is also an integral membrane protein tyrosine phosphatase. The cytogenetic location of CD45 is 1q31.3-q32.1. This gene is especially a prototype for transmembrane protein-tyrosine phosphatase (PTP). Targeted disruption of the CD45 gene leads to enhanced cytokine and interferon receptor-mediated activation of JAKs and STAT proteins. In vitro, CD45 directly dephosphorylates and binds to JAKs. Functionally, CD45 negatively regulates interleukin-3-mediated cellular proliferation, erythropoietin-dependent hematopoiesis, and antiviral responses in vitro and in vivo. CD45 has been best studied in T cells, where it determines T cell receptor signaling thresholds. CD45 is moved into or out of the immunological synapse (IS) membrane microdomain depending on the relative influence of interaction with the extracellular galectin lattice or the intracellular actin cytoskeleton. Galectin interaction can be finetuned by varying usage of the heavily Oglycosylated spliced regions and sialylation of Nlinked carbohydrates.

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Overview

Product Name	Anti-CD45/PTPRC Antibody Picoband®
Reactive Species	Human
Description	Boster Bio Anti-CD45/PTPRC Antibody Picoband® catalog # PB9096. Tested in Flow Cytometry, IF, IHC, WB applications. This antibody reacts with Human. The brand Picoband indicates this is a premium antibody that guarantees superior quality, high affinity, and strong signals with minimal background in Western blot applications. Only our best-performing antibodies are designated as Picoband, ensuring unmatched performance.
Application	Flow Cytometry, IF, IHC, WB
Clonality	Polyclonal
Formulation	Each vial contains antibody formulated with stabilizing components, 0.9 mg NaCl, 0.2 mg Na2HPO4, and 0.05 mg NaN3. *This antibody is supplied in a stabilized formulation. Compatibility with conjugation reactions depends on the chemistry of the conjugation method used. For conjugation methods that are not compatible with the stabilizing components present in this formulation, a carrier-free antibody format is required.
Storage Instructions	Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.

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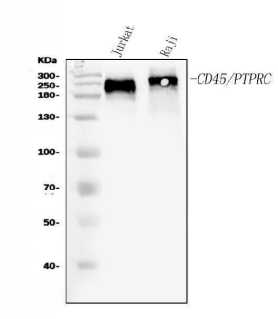
Host	Rabbit
Uniprot ID	P08575

Technical Details

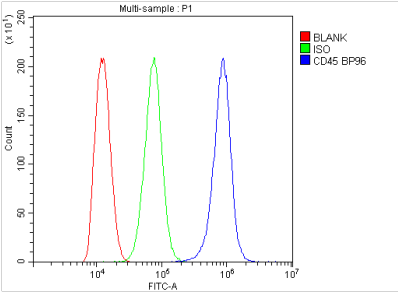
Immunogen	E.coli-derived human CD45 recombinant protein (Position: R1113-S1304). Human CD45 shares 68% amino acid (aa) sequence identity with both mouse and rat CD45.
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot, and HRP Conjugated anti-Rabbit IgG Super Vision Assay Kit (SV0002-1) for IHC(P).
Cross Reactivity	No cross-reactivity with other proteins
Isotype	Rabbit IgG
Form	Lyophilized
Concentration	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml.
Purification	Immunogen affinity purified.
Suggested Dilutions	Western blot, 0.1-0.5ug/ml, Human Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml, Human Immunofluorescence, 2ug/ml, Human Flow Cytometry (Fixed), 1-3ug/1x10^6 cells, Human Note: For flow cytometry (FCM), suitable for fixed cells only. Not suitable for FACS or surface flow cytometry using live cells.

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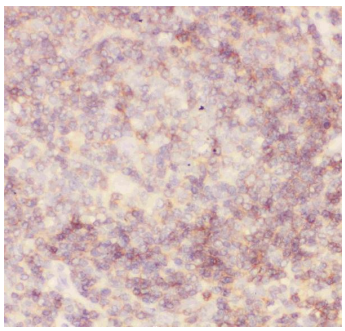
Anti-CD45/PTPRC Antibody Picoband® (PB9096) Images



Western blot analysis of CD45 using anti-CD45 antibody (PB9096). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions. Lane 1: human Jurkat whole cell lysates, Lane 2: human Raji whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-CD45 antigen affinity purified polyclonal antibody (Catalog # PB9096) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for CD45 at approximately 180-250 kDa. The expected band size for AFP is at 147 kDa.



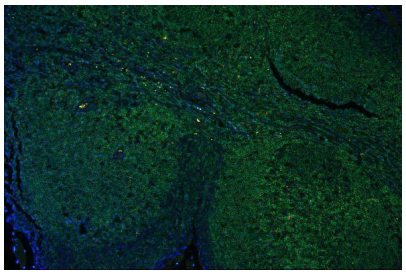
Flow Cytometry analysis of THP-1 cells using anti-CD45 antibody (PB9096). Overlay histogram showing THP-1 cells stained with PB9096 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-CD45 Antibody (PB9096,1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



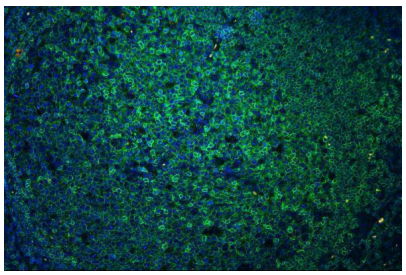
IHC analysis of CD45 using anti-CD45 antibody (PB9096). CD45 was detected in a paraffin-embedded section of human tonsil tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 ug/ml rabbit anti-CD45 Antibody (PB9096) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1022) with DAB as the chromogen.

IF analysis of CD45 using anti-CD45 antibody (PB9096) CD45 was detected in paraffin-embedded section of human tonsil tissues. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins.

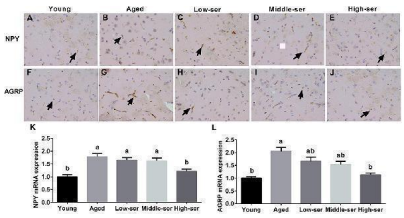
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The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/mL rabbit anti-CD45 Antibody (PB9096) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Rabbit IgG (BA1127) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



IF analysis of CD45 using anti-CD45 antibody (PB9096) CD45 was detected in paraffin-embedded section of human tonsil tissues. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/mL rabbit anti-CD45 Antibody (PB9096) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Rabbit IgG (BA1127) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Effects of long-term L -serine administration on orexigenic neuropeptide expression in aging mice. NPY (A–E) and AGRP (F–J) expression as determined by immunohistochemistry; relative NPY (K) and AGRP (L) mRNA expression. Aged, untreated control mice; Low-ser, mice supplemented with 0.1% (wt/vol) L -serine dissolved in the drinking water; Middle-ser, mice supplemented with 0.2% (wt/vol) L -serine dissolved in the drinking water; High-ser, mice supplemented with 0.5% (wt/vol) L -serine dissolved in the drinking water. Young, adult male mice at the age of 18 months. Arrow (yellow), expression of target proteins; NPY, neuropeptide Y; AGRP, agouti-related protein. Values are expressed as mean ± SEM, n = 8; a, b Means of the bars with different letters were significantly different among groups ($P < 0.05$).Source: Xihong Zhou et al. Licensed under CC BY 4.0. PMID: 30190704

6 Publications Citing This Product

1. PubMed ID: 23630099, Li X, Huang Y, Zheng L, Liu H, Niu X, Huang J, Zhao F, Fan Y. J Biomed Mater Res A. 2014 Apr;102(4):1092-101. Doi: 10.1002/Jbm.A.34774. Epub 2013 Jun 11. Effect Of Substrate Stiffness On The Functions Of Rat Bone Marrow And Adipose Tissue Derived ...

2. PubMed ID: 24681515, Liu D, Wang Y, Ye Y, Yin G, Chen L. Cell Immunol. 2014 May-Jun;289(1-2):7-14. Doi: 10.1016/J.Cellimm.2014.01.007. Epub 2014 Feb 2. Distinct Molecular Basis For Endothelial Differentiation: Gene Expression Profiles Of Human Mesenchymal Stem Cells V...

3. PubMed ID: 21167388, Huang Y, Jia X, Bai K, Gong X, Fan Y. Arch Med Res. 2010 Oct;41(7):497-505. Doi: 10.1016/J.Arcmed.2010.10.002. Effect Of Fluid Shear Stress On Cardiomyogenic Differentiation Of Rat Bone Marrow Mesenchymal Stem Cells.

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