abcam

Product datasheet

Anti-CD45 antibody [F10-89-4] - Hematopoietic Stem Cell Marker ab30470

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Overview

Product name	Anti-CD45 antibody [F10-89-4] - Hematopoietic Stem Cell Marker
Description	Mouse monoclonal [F10-89-4] to CD45 - Hematopoietic Stem Cell Marker
Host species	Mouse
Specificity	Clone F10-89-4 reacts with all forms of CD45 expressed by all haematopoietic cells, except erythrocytes, having a higher level of expression on lymphocytes than on granulocytes.
Tested applications	**Suitable for:** ICC/IF, Flow Cyt, IHC-P
Species reactivity	**Reacts with:** Human
Immunogen	Tissue, cells or virus corresponding to Human CD45. Human T lymphocytes.
Positive control	IHC-P: Human tonsil (normal) tissue. ICC/IF: Jurkat cells. Flow Cyt: Jurkat cells, whole blood.
General notes	This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact **orders@abcam.com**. The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.40 Preservative: 0.02% Sodium azide Constituent: PBS
Purity	Protein G purified
Primary antibody notes	Clone F10-89-4 reacts with all forms of CD45 expressed by all haematopoietic cells, except

erythrocytes, having a higher level of expression on lymphocytes than on granulocytes.

Clonality	Monoclonal
Clone number	F10-89-4
Myeloma	NS1
Isotype	IgG2a

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab30470 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
ICC/IF	★★★★★ (1)	Use a concentration of 5 - 10 µg/ml.
Flow Cyt		1/10 - 1/50. **ab170191** - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.
IHC-P		Use a concentration of 1 - 5 µg/ml. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

Target

Function Protein tyrosine-protein phosphatase required for T-cell activation through the antigen receptor. Acts as a positive regulator of T-cell coactivation upon binding to DPP4. The first PTPase domain has enzymatic activity, while the second one seems to affect the substrate specificity of the first one. Upon T-cell activation, recruits and dephosphorylates SKAP1 and FYN.

Involvement in disease Defects in PTPRC are a cause of severe combined immunodeficiency autosomal recessive T-cell-negative/B-cell-positive/NK-cell-positive (T(-)B(+)NK(+) SCID) [MIM:608971]. A form of severe combined immunodeficiency (SCID), a genetically and clinically heterogeneous group of rare congenital disorders characterized by impairment of both humoral and cell-mediated immunity, leukopenia, and low or absent antibody levels. Patients present in infancy recurrent, persistent infections by opportunistic organisms. The common characteristic of all types of SCID is absence of T-cell-mediated cellular immunity due to a defect in T-cell development.
Genetic variations in PTPRC are involved in multiple sclerosis susceptibility (MS) [MIM:126200]. MS is a neurodegenerative disorder characterized by the gradual accumulation of focal plaques of demyelination particularly in the periventricular areas of the brain. Peripheral nerves are not affected. Onset usually in third or fourth decade with intermittent progression over an extended period. The cause is still uncertain.

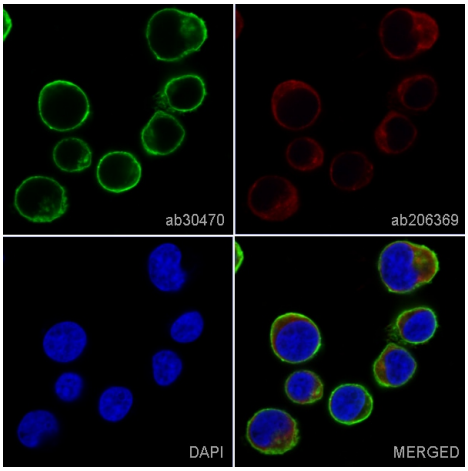
Sequence similarities Belongs to the protein-tyrosine phosphatase family. Receptor class 1/6 subfamily.
Contains 2 fibronectin type-III domains.
Contains 2 tyrosine-protein phosphatase domains.

Domain The first PTPase domain interacts with SKAP1.

Post-translational modifications Heavily N- and O-glycosylated.

Cellular localization Membrane. Membrane raft. Colocalized with DPP4 in membrane rafts.

Images

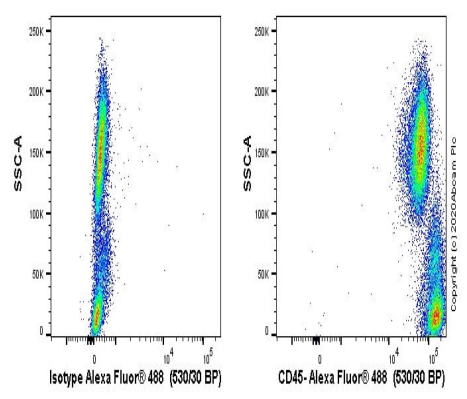


Immunocytochemistry/ Immunofluorescence - Anti-CD45 antibody [F10-89-4] - Hematopoietic Stem Cell Marker (ab30470)

ab30470 staining CD45 in Jurkat (Human T cell leukemia cell line from peripheral blood) cells. The cells were fixed with 4% formaldehyde (10 minutes), then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1 hour. The cells were then incubated overnight at +4°C with ab30470 at 5 µg/ml (shown in green) and **ab206369**, Rabbit monoclonal to beta Tubulin (Alexa Fluor® 594), at 1/250 dilution (shown in red). This was followed by an incubation at room temperature for 1 hour with **ab150117**, Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) preadsorbed, at 1 µg/ml (shown in green). Nuclear DNA was labelled with DAPI (shown in blue).

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

This product also gave a positive signal under the same testing conditions in Jurkat cells fixed with 80% methanol (5 minutes).

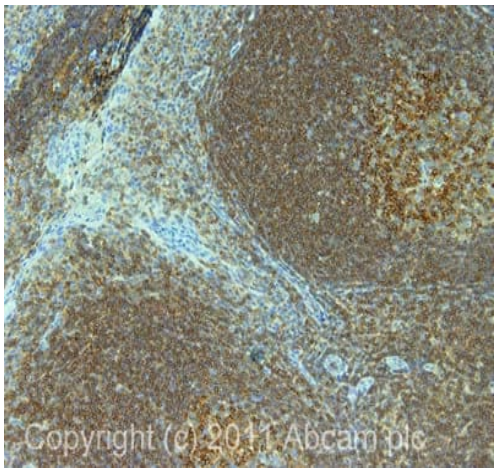


Flow Cytometry - Anti-CD45 antibody [F10-89-4] - Hematopoietic Stem Cell Marker (ab30470)

Flow cytometry staining of human whole blood with ab30470 (right) or mouse IgG2aκ; (**ab18413**) isotype (left). Red blood cells of 200 µL blood were lysed, then cells were incubated for 30 min on ice in 1x PBS containing 10 µg/ml human IgG and 10 % normal goat serum to block FC receptors and non-specific protein-protein interaction followed by the antibody (ab30470) or mouse IgG2aκ; (**ab18413**) isotype ($1x10^6$ in 100 µL at 0.2 µg/ml) for 30 min on ice.

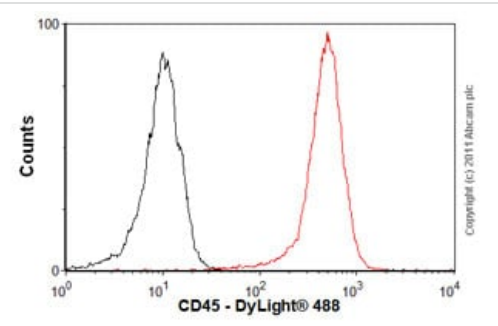
The secondary antibody Goat anti-mouse IgG H&L (Alexa Fluor ® 488, pre-adsorbed) (**ab150117**) was used at 1/2000 dilution for 30 min on ice.

Acquisition of >30000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter. Events were gated on alive cells.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD45 antibody [F10-89-4] - Hematopoietic Stem Cell Marker (ab30470)

IHC image of CD45 staining in human tonsil formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6, epitope retrieval solution 1) for 20 minutes. The section was then incubated with ab30470, 1 µg/ml, for 15 minutes at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Flow Cytometry - Anti-CD45 antibody [F10-89-4] - Hematopoietic Stem Cell Marker (ab30470)

Overlay histogram showing Jurkat (Human T cell leukemia cell line from peripheral blood) cells stained with ab30470 (red line). The cells were fixed with 4% paraformaldehyde (10 minutes) and incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab30470, 1 µg/1 x 10^6 cells) for 30 minutes at 22ºC. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (**ab96879**) at 1/500 dilution for 30 minutes at 22ºC. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (**ab91361**, 1 µg/1 x 10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Jurkat cells fixed with 80% methanol (5 minutes) used under the same conditions.

Please note that Abcam do not have any data for use of this antibody on non-fixed cells. We welcome any customer feedback.

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