abcam

Product datasheet

Anti-CD45 antibody [RM1007] ab281586

Recombinant RabMAb

3 Abreviews 2 References 13 Images

Overview

Product name	Anti-CD45 antibody [RM1007]
Description	Rabbit recombinant multiclonal [RM1007] to CD45
Host species	Rabbit
Tested applications	**Suitable for:** IP, Flow Cyt (Intra), WB, IHC-P, ICC **Unsuitable for:** IHC-Fr
Species reactivity	**Reacts with:** Mouse, Rat, Human
Immunogen	**This product was produced with the following immunogens:** Synthetic peptide. This information is proprietary to Abcam and/or its suppliers. Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
Positive control	WB: Jurkat, Mouse thymus, Rat thymus lysates. IHC-P: Human tonsil, spleen, colon cancer, Mouse spleen and Rat spleen tissues. ICC: Jurkat cells. Flow Cyt: Human PBMCs, Jurkat cells, Mouse PBMCs. IP: Jurkat cell.
General notes	This product is a recombinant monoclonal antibody, which offers several advantages including: - High batch-to-batch consistency and reproducibility - Improved sensitivity and specificity - Long-term security of supply - Animal-free production For more information **see here**. Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to **RabMAb® patents**.

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: 7.2 Preservative: 0.01% Sodium azide Constituents: 40% Glycerol (glycerin, glycerine), 0.05% BSA, 59% PBS

Purity	Protein A purified
Clonality	Recombinant Multiclonal
Clone number	RM1007
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab281586 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
IP		1/50.
Flow Cyt (Intra)		1/50.
WB		1/1000. Predicted molecular weight: 147 kDa.
IHC-P	★★★★★ (3)	1/2000. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.
ICC		1/50.

Application notes Is unsuitable for IHC-Fr.

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.

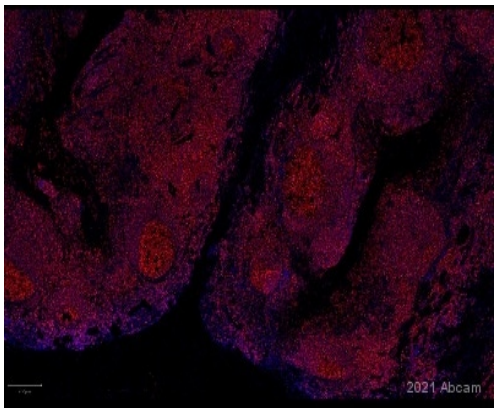
Domain The first PTPase domain interacts with SKAP1.

Post-translational Heavily N- and O-glycosylated.

modifications

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

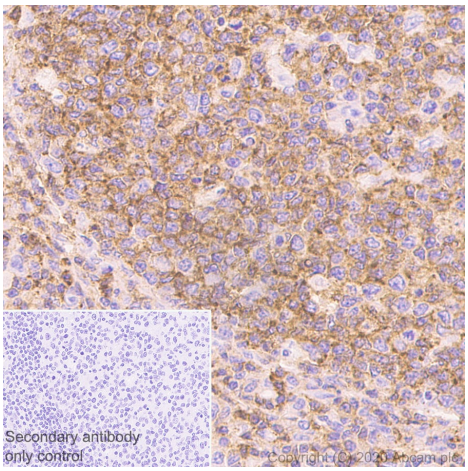
Images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD45 antibody [RM1007] (ab281586)

This image is courtesy of an Abreview submitted by Dylan Windell

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of paraformaldehyde-fixed 0.3% Triton X-100 permeabilized human tonsil tissue staining with ab281586 at 10 µg/ml concentration. Samples were incubated with the primary antibody for 1 hour at 20°C. Blocking was done using Donkey Serum 10% + 3% BSA for 24 hours at 4°C. Heat mediated antigen retrieval with Citrate pH 6 & TRIS pH 9.

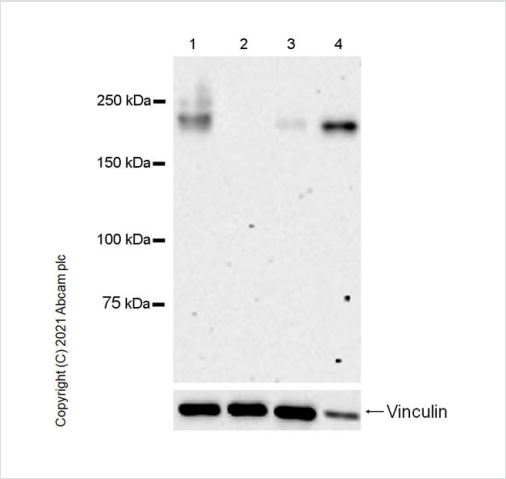


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD45 antibody [RM1007] (ab281586)

Immunohistochemical analysis of paraffin-embedded Human tonsil tissue labelling CD45 with ab281586 at 1/4000 (0.138 ug/ml) dilution followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on human tonsil. The section was incubated with ab281586 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Western blot - Anti-CD45 antibody [RM1007] (ab281586)

All lanes : Anti-CD45 antibody [RM1007] (ab281586) at 1/1000 dilution

Lane 1 : Jurkat (human T cell leukemia T lymphocyte), whole cell lysate
Lane 2 : 293T (human embryonic kidney epithelial cell) whole cell lysate
Lane 3 : Mouse thymus tissue lysate
Lane 4 : Rat thymus tissue lysate

Lysates/proteins at 20 µg per lane.

Secondary
All lanes : Goat Anti-Rabbit IgG H&L (HRP) (**ab97051**) at 1/100000 dilution (Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated)

Predicted band size: 147 kDa
Observed band size: 180,240 kDa

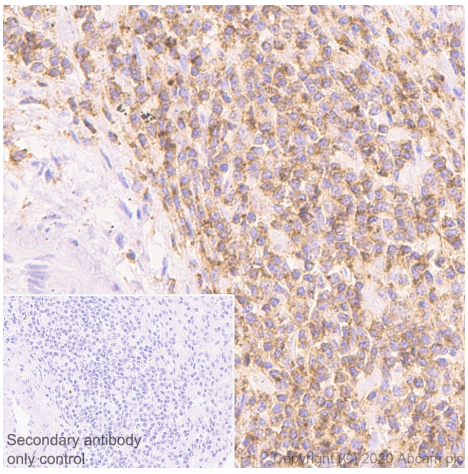
Blocking and diluting buffer and concentration: 5% NFDM/TBST

The MW observed is consistent with the literature (PMID: 14715639).

Negative control: 293T (PMID: 22978632).

This blot was developed using a higher sensitivity ECL substrate.

Exposure time: 3 minutes.

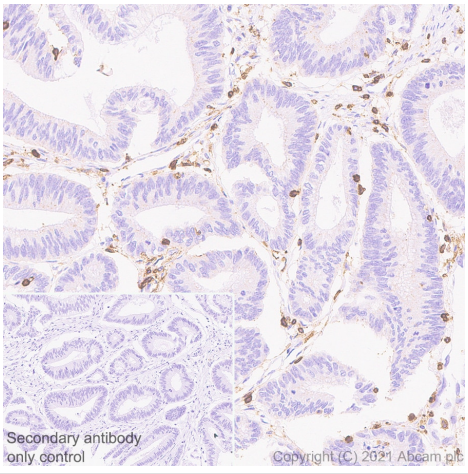


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD45 antibody [RM1007] (ab281586)

Immunohistochemical analysis of paraffin-embedded Human spleen tissue labelling CD45 with ab281586 at 1/4000 (0.138 ug/ml) dilution followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on human spleen. The section was incubated with ab281586 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

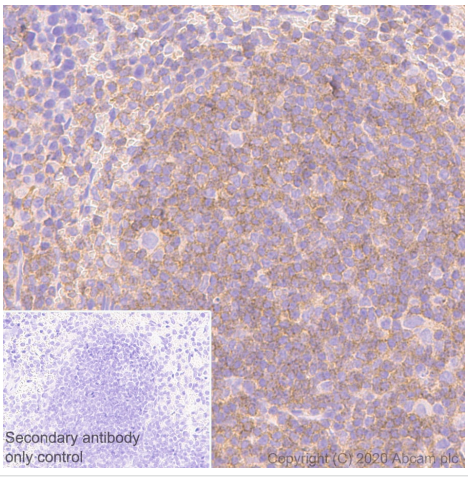


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD45 antibody [RM1007] (ab281586)

Immunohistochemical analysis of paraffin-embedded Human colon cancer tissue labelling CD45 with ab281586 at 1/4000 (0.138 ug/ml) dilution followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on stromal cells of human colon cancer (PMID: 30713795). The section was incubated with ab281586 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

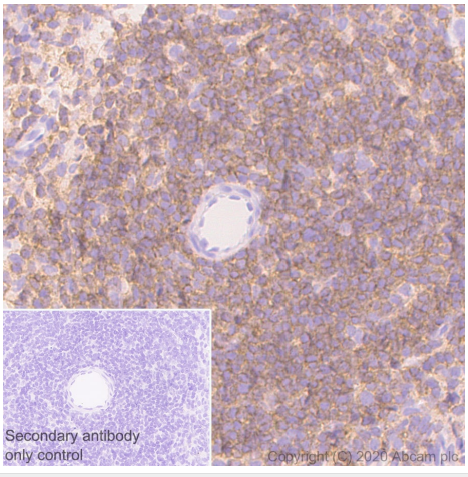


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD45 antibody [RM1007] (ab281586)

Immunohistochemical analysis of paraffin-embedded Mouse spleen tissue labelling CD45 with ab281586 at 1/2000 (0.275 ug/ml) dilution followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on mouse spleen. The section was incubated with ab281586 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

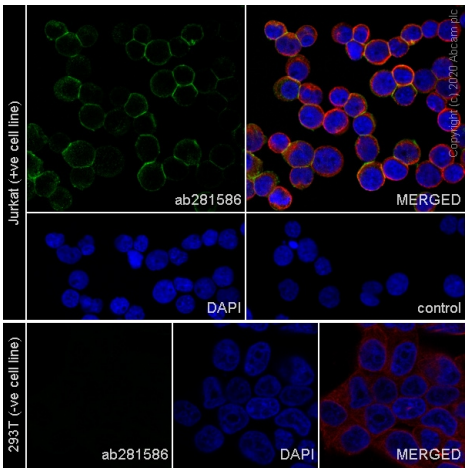


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD45 antibody [RM1007] (ab281586)

Immunohistochemical analysis of paraffin-embedded Rat spleen tissue labelling CD45 with ab281586 at 1/2000 (0.275 ug/ml) dilution followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on rat spleen. The section was incubated with ab281586 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

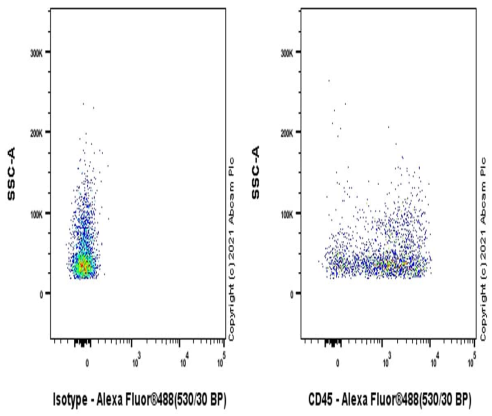
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunocytochemistry - Anti-CD45 antibody [RM1007] (ab281586)

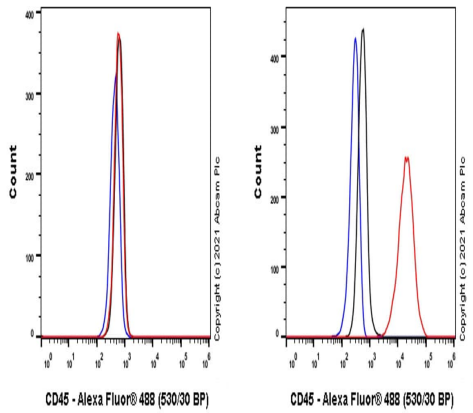
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Jurkat cells labelling CD45 with ab281586 at 1/50 (11.0 ug/ml) dilution, followed by **ab150077** Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green) Confocal image showing membranouse staining in Jurkat cells and no staining in 293T cells is observed. **ab195889** Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is **ab150077** Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



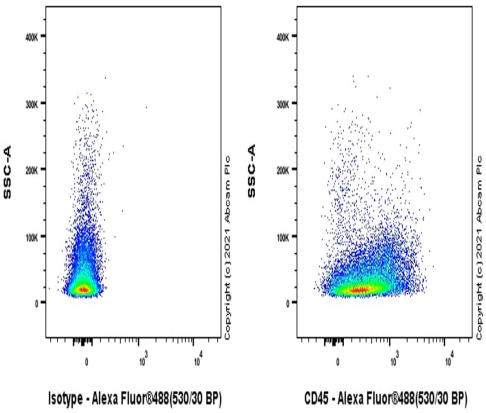
Flow Cytometry (Intracellular) - Anti-CD45 antibody [RM1007] (ab281586)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Human peripheral blood mononuclear cell (PBMC) cells labelling CD45 with ab281586 at 1/500 dilution (0.1ug). Right compared with a Rabbit monoclonal IgG (**ab172730**)/ Left isotype control. A Goat anti rabbit IgG (Alexa Fluor® 488, **ab150077**) at 1/2000 dilution was used as the secondary antibody.



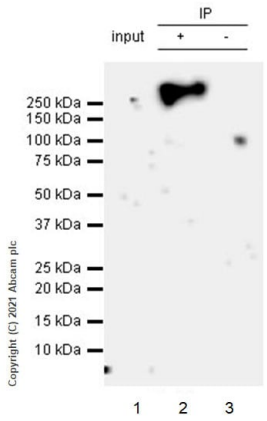
Flow Cytometry (Intracellular) - Anti-CD45 antibody [RM1007] (ab281586)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized 293T (Human embryonic kidney epithelial cell, Left) / Jurkat (Human T cell leukemia T lymphocyte, Right) cells labelling CD45 with ab281586 at 1/500 dilution (0.1ug) (Red) compared with a Rabbit monoclonal IgG (**ab172730**) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, **ab150077**) at 1/2000 dilution was used as the secondary antibody. Negative control: 293T. (PMID: 16005866)



Flow Cytometry (Intracellular) - Anti-CD45 antibody [RM1007] (ab281586)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Mouse peripheral blood mononuclear cell (PBMC) cells labelling CD45 with ab281586 at 1/50 dilution (1ug). Right compared with a Rabbit monoclonal IgG (**ab172730**) / Left isotype control. A Goat anti rabbit IgG (Alexa Fluor® 488, **ab150077**) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-CD45 antibody [RM1007] (ab281586)

CD45 was immunoprecipitated from 0.35 mg Jurkat (human T cell leukemia T lymphocyte), whole cell lysate 10 ug with ab281586 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using 281586 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP)(**ab131366**) was used at 1/5000 dilution.

Lane 1: Jurkat (human T cell leukemia T lymphocyte), whole cell lysate 10 ug

Lane 2: ab281586 IP in Jurkat whole cell lysate

Lane 3: Rabbit monoclonal IgG (**ab172730**) instead of abx in Jurkat whole cell lysate

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 minutes

Anti-CD45 antibody [RM1007] (ab281586)

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours

- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit **https://www.abcam.com/abpromise** or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors