abcam

ab134189

Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y]

Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y] (ab134189) is a rabbit monoclonal antibody detecting HLA A in **Western Blot, Flow Cytometry, IHC-P, ICC/IF**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 20 publications

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR1394Y
Purification technique	Affinity purification Protein A
Specificity	In our hands this antibody did not work in WB with mouse samples, but customer data suggest that reactivity in ICC/IF and IHC. Due to high homology across HLA class I histocompatibility, alpha chains there is potential cross-reactivity with other HLA class I proteins.
Concentration	1.02 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Flow Cyt

Tested

Species	Human
Dilution info	1/100
Notes	**For unpurified use at 1/20 - 1/1000.** ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1/2000
Notes	**For unpurified use at 1/1000 - 1/10000.**

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Target data

See full target information HLA-B

Function

Antigen-presenting major histocompatibility complex class I (MHCI) molecule. In complex with B2M/beta 2 microglobulin displays primarily viral and tumor-derived peptides on antigen-presenting cells for recognition by alpha-beta T cell receptor (TCR) on HLA-B-restricted CD8-positive T cells, guiding antigen-specific T cell immune response to eliminate infected or transformed cells (PubMed:23209413, PubMed:25808313, PubMed:29531227, PubMed:9620674). May also present self-peptides derived from the signal sequence of secreted or membrane proteins, although T cells specific for these peptides are usually inactivated to prevent autoreactivity (PubMed:18991276, PubMed:7743181). Both the peptide and the MHC molecule are recognized by TCR, the peptide is responsible for the fine specificity of antigen recognition and MHC residues account for the MHC restriction of T cells (PubMed:24600035, PubMed:29531227, PubMed:9620674). Typically presents intracellular peptide antigens of 8 to 13 amino acids that arise from cytosolic proteolysis via constitutive proteasome and IFNG-induced immunoproteasome (PubMed:23209413). Can bind different peptides containing allele-specific binding motifs, which are mainly defined by anchor residues at position 2 and 9 (PubMed:25808313, PubMed:29531227). Allele B*07:02: Displays peptides sharing a common signature motif, namely a Pro residue at position 2 and mainly a Leu anchor residue at the C-terminus (PubMed:7743181). Presents a long peptide (APRGPHGGAASGL) derived from the cancer-testis antigen CTAG1A/NY-ESO-1, eliciting a polyclonal CD8-positive T cell response against tumor cells (PubMed:29531227). Presents viral epitopes derived from HIV-1 gag-pol (TPQDLNTML) and Nef (RPQVPLRPM) (PubMed:25808313). Presents an immunodominant epitope derived from SARS-CoV-2 N/nucleoprotein (SPRWYFYYL) (PubMed:32887977). Displays self-peptides including a peptide derived from the signal sequence of HLA-DPB1 (APRTVALTA) (PubMed:7743181). Allele B*08:01: Presents to CD8-positive T cells viral epitopes derived from EBV/HHV-4 EBNA3 (QAKWRLQTL), eliciting cytotoxic T cell response. Allele B*13:02: Presents multiple HIV-1 epitopes derived from gag (RQANFLGKI, GQMREPRGSDI), nef (RQDILDLWI), gag-pol (RQYDQILIE, GQGQWTYQI) and rev (LQLPPLERL), all having in common a Gln residue at position 2 and mainly hydrophobic amino acids Leu, Ile or Val at the C-terminus. Associated with successful control of HIV-1 infection. Allele B*18:01: Preferentially presents octameric and nonameric peptides sharing a common motif, namely a Glu at position 2 and Phe or Tyr anchor residues at the C-terminus (PubMed:14978097, PubMed:18991276, PubMed:23749632). Presents an EBV/HHV-4 epitope derived from BZLF1 (SELEIKRY) (PubMed:23749632). May present to CD8-positive T cells an antigenic peptide derived from MAGEA3 (MEVDPIGHLY), triggering an anti-tumor immune response (PubMed:12366779). May display a broad repertoire of self-peptides with a preference for peptides derived from RNA-binding proteins (PubMed:14978097). Allele B*27:05: Presents to CD8-positive T cells immunodominant viral epitopes derived from HCV POLG (ARMILMTHF), HIV-1 gag (KRWIILGLNK), IAV NP (SRYWAIRTR), SARS-CoV-2 N/nucleoprotein (QRNAPRITF), EBV/HHV-4 EBNA4 (HRCQAIRKK) and EBV/HHV-4 EBNA6 (RRIYDLIEL), conferring longterm protection against viral infection (PubMed:15113903, PubMed:18385228, PubMed:19139562, PubMed:32887977, PubMed:9620674). Can present self-peptides derived from cytosolic and nuclear proteins. All peptides carry an Arg at position 2 (PubMed:1922338). The peptide-bound form interacts with NK cell inhibitory receptor KIR3DL1 and inhibits NK cell activation in a peptide-specific way, being particularly sensitive to the nature of the amino acid side chain at position 8 of the antigenic peptide (PubMed:15657948,

PubMed:8879234). KIR3DL1 fails to recognize HLA-B*27:05 in complex with B2M and EBV/HHV-4 EBNA6 (RRIYDLIEL) peptide, which can lead to increased activation of NK cells during infection (PubMed:15657948). May present an altered repertoire of peptides in the absence of TAP1-TAP2 and TAPBPL (PubMed:9620674). Allele B*40:01: Presents immunodominant viral epitopes derived from EBV/HHV-4 LMP2 (IEDPPFNSL) and SARS-CoV-2 N/nucleoprotein (MEVTPSGTWL), triggering memory CD8-positive T cell response (PubMed:18991276, PubMed:32887977). Displays self-peptides sharing a signature motif, namely a Glu at position 2 and a Leu anchor residue at the C-terminus (PubMed:18991276). Allele B*41:01: Displays self-peptides sharing a signature motif, namely a Glu at position 2 and Ala or Pro anchor residues at the C-terminus. Allele B*44:02: Presents immunodominant viral epitopes derived from EBV/HHV-4 EBNA4 (VEITPYKPTW) and EBNA6 (AEGGVGWRHW, EENLLDFVRF), triggering memory CD8-positive T cell response (PubMed:18991276, PubMed:9620674). Displays self-peptides sharing a signature motif, namely a Glu at position 2 and Phe, Tyr or Trp anchor residues at the C-terminus (PubMed:18991276). Allele B*45:01: Displays self-peptides sharing a signature motif, namely a Glu at position 2 and Ala or Pro anchor residues at the C-terminus. Allele B*46:01: Preferentially presents nonameric peptides sharing a signature motif, namely Ala and Leu at position 2 and Tyr, Phe, Leu, or Met anchor residues at the C-terminus. The peptide-bound form interacts with KIR2DL3 and inhibits NK cell cytotoxic response in a peptide-specific way. Allele B*47:01: Displays self-peptides sharing a signature motif, namely an Asp at position 2 and Leu or Met anchor residues at the C-terminus. Allele B*49:01: Displays self-peptides sharing a signature motif, namely a Glu at position 2 and Ile or Val anchor residues at the C-terminus. Allele B*50:01: Displays self-peptides sharing a signature motif, namely a Glu at position 2 and Ala or Pro anchor residues at the C-terminus. Allele B*51:01: Presents an octameric HIV-1 epitope derived from gag-pol (TAFTIPSI) to the public TRAV17/TRBV7-3 TCR clonotype, strongly suppressing HIV-1 replication. Allele B*54:01: Displays peptides sharing a common signature motif, namely a Pro residue at position 2 and Ala anchor residue at the C-terminus. Allele B*55:01: Displays peptides sharing a common signature motif, namely a Pro residue at position 2 and Ala anchor residue at the C-terminus. Allele B*56:01: Displays peptides sharing a common signature motif, namely a Pro residue at position 2 and Ala anchor residue at the C-terminus. Allele B*57:01: The peptide-bound form recognizes KIR3DL1 and inhibits NK cell cytotoxic response. Presents HIV gag peptides (immunodominant KAFSPEVIPMF and subdominant KALGPAATL epitopes) predominantly to CD8-positive T cell clones expressing a TRAV41-containing TCR, triggering HLA-B-restricted T cell responses. Allele B*67:01: Displays peptides sharing a common signature motif, namely a Pro residue at position 2 and Leu anchor residue at the C-terminus.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C

Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y] (ab134189) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of HLA A?
Anti-MHC class I + HLA A + HLA B [EPR1394Y] (ab134189) specifically detects a band for HLA A (UniProt: P04439) at a molecular weight of 41kDa.

Trusted by the scientific community
Anti-MHC class I + HLA A + HLA B [EPR1394Y] (ab134189) was first used in a scientific publication in 2012 and has been cited over 20 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [EPR1394Y] also available for your convenience: ab134189, PE - ab303107, APC - ab303108, HRP - ab303109, Alkaline Phosphatase - ab308909, Alexa Fluor® 647 - ab310194, Alexa Fluor® 594 - ab310635, Alexa Fluor® 555 - ab312162, Alexa Fluor® 568 - ab312649, Alexa Fluor® 750 - ab321088

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
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 batch production

For more information, read more on recombinant antibodies.

Species reactivity
Rat: We have preliminary internal testing data to indicate this antibody may not react with this species.
Please contact us for more information.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	MHC class I molecules including HLA-A and HLA-B are proteins integral to the immune system. They often refer to as HLA which stands for Human Leukocyte Antigens. Typically MHC class I proteins with a molecular mass of around 45 kDa are expressed on the surface of nearly all nucleated cells. Their main mechanical function is to present endogenous peptides to CD8+ cytotoxic T lymphocytes enabling the immune system to monitor and respond to intracellular changes such as infections or malignancies.
Biological function summary	These MHC molecules play a critical role in adaptive immunity. They form a complex with beta-2 microglobulin (B2m) to achieve stability and function properly on cell surfaces. HLA-A and HLA-B bind to short peptides derived from intracellular proteins which are then transported through the endoplasmic reticulum. The peptide-MHC complex is then expressed on the cell surface where it facilitates recognition by T cell receptors guiding immune responses against infected or transformed cells.
Pathways	MHC class I molecules are deeply involved in the antigen processing and presentation pathway as well as the immune effector process. In the antigen processing pathway proteins within the cell undergo degradation by the proteasome creating peptide fragments. These fragments are transported into the endoplasmic reticulum by the TAP (transporter associated with antigen processing) proteins where they bind with MHC class I forming a stable complex. Proteins like TAP and proteasome subunits work closely with MHC class I to ensure proper immune surveillance.
Associated diseases and disorders	Dysregulation or alterations in MHC class I molecules particularly HLA-A and HLA-B have been linked to autoimmune diseases and cancers. For instance specific HLA alleles associate with autoimmune conditions like Type 1 Diabetes where the immune system erroneously targets pancreatic cells. In cancers a downregulation of MHC class I molecules often occurs as a mechanism to evade immune detection. Altered expression of proteins like TAP can also disrupt antigen presentation contributing to the disease onset and progression.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

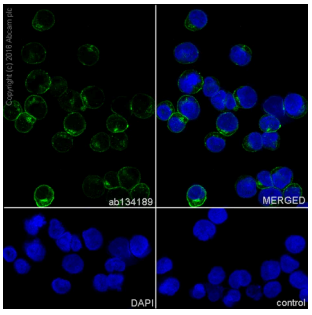
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

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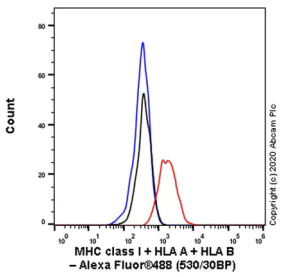
4 product images



Immunocytochemistry/ Immunofluorescence - Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y] (ab134189)

MHC class I + HLA A + HLA B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MHC class I + HLA A + HLA B antibody

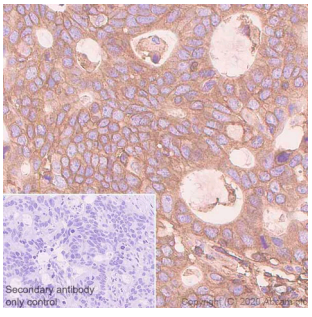
Immunocytochemistry/ Immunofluorescence analysis of Raji (human Burkitt's lymphoma B lymphocyte) cells labeling MHC class I+HLA A+HLA B with purified ab134189 at 1/500 dilution (4.3 µg/mL). Cells were fixed in 100% Methanol. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain.



Flow Cytometry - Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y] (ab134189)

MHC class I + HLA A + HLA B Flow Cytometry staining using rabbit Anti-MHC class I + HLA A + HLA B antibody

Flow Cytometry analysis of Raji (Human Burkitt's lymphoma B lymphocyte) cells, labeling MHC class I+HLA A+HLA B with Purified ab134189 at 1:100 dilution (10 µg/ml) (Red). Cells were fixed with / and permeabilised with /. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1:2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).

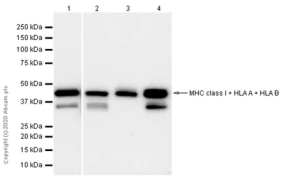


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y] (ab134189)

MHC class I + HLA A + HLA B Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MHC class I + HLA A + HLA B antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human colon carcinoma tissue sections labeling MHC class I+HLA A+HLA B with purified ab134189 at 1/4000 dilution (0.26 µg/mL). Heat mediated antigen retrieval was performed using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody.

Hematoxylin was used as a counterstain.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Western blot - Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y] (ab134189)

MHC class I + HLA A + HLA B Western blot staining using rabbit Anti-MHC class I + HLA A + HLA B antibody

Blocking/Diluting buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-MHC class I + HLA A + HLA B antibody [EPR1394Y] (ab134189) at 1/2000 dilution

Lane 1:
Raji (Human Burkitt's lymphoma B lymphocyte) whole cell lysate at 20 µg

Lane 2:
Human liver lysate at 20 µg

Lane 3:
THP-1 (Human monocytic leukemia monocyte) whole cell lysate at 20 µg

Lane 4:
U-937 (Human histiocytic lymphoma monocyte) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Observed band size: 35 kDa, 44 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.