abcam

ab55152

Anti-MHC Class II antibody [6C6]

Anti-MHC Class II antibody [6C6] (ab55152) is a mouse monoclonal antibody detecting MHC Class II in Western Blot, Flow Cytometry, IHC-P, ICC/IF. Suitable for Human.

-Carrier Free
-Produces clear membrane and cytoplasmic staining in antigen-presenting cells.
-Cited in over 30 publications
-Trusted since 2007

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Full Length Protein corresponding to Human HLA-DPB1. Database link P04440
Carrier free	Yes
Clone number	6C6
Purification technique	Affinity purification Protein A
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	(Also see PMID: 18941249) ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Predicted

Species	Rhesus monkey
Dilution info	-
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

WB

Tested

Species	Recombinant full length protein - Human
Dilution info	-
Notes	This antibody has only been tested in WB against the recombinant fragment used as immunogen. We have no data on the detection of endogenous protein.

Species	Human
Dilution info	-
Notes	This antibody has only been tested in WB against the recombinant fragment used as immunogen. We have no data on the detection of endogenous protein.

Predicted

Species	Rhesus monkey

Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Rhesus monkey
Dilution info	-
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Rhesus monkey
Dilution info	-
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

Target data

See full target information HLA-DPB1

Function	Binds peptides derived from antigens that access the endocytic route of antigen presenting cells (APC) and presents them on the cell surface for recognition by the CD4 T-cells. The peptide binding cleft accommodates peptides of 10-30 residues. The peptides presented by MHC class II molecules are generated mostly by degradation of proteins that access the endocytic route, where they are processed by lysosomal proteases and other hydrolases. Exogenous antigens that have been endocytosed by the APC are thus readily available for presentation via MHC II molecules, and for this reason this antigen presentation pathway is usually referred to as exogenous. As membrane proteins on their way to degradation in lysosomes as part of their normal turn-over are also contained in the endosomal/lysosomal compartments, exogenous antigens must compete with those derived from endogenous components. Autophagy is also a source of endogenous peptides, autophagosomes constitutively fuse with MHC class II loading compartments. In addition to APCs, other cells of the gastrointestinal tract, such as epithelial cells, express MHC class II molecules and CD74 and act as APCs, which is an unusual trait of the GI tract. To produce a MHC class II molecule that presents an antigen, three MHC class II molecules (heterodimers of an alpha and a beta chain) associate with a CD74 trimer in the ER to form a heterononamer. Soon after the entry of this complex into the endosomal/lysosomal system where antigen processing occurs, CD74 undergoes a sequential degradation by various proteases, including CTSS and CTSL, leaving a small fragment termed CLIP (class-II-associated invariant chain peptide). The removal of CLIP is facilitated by HLA-DM via direct binding to the alpha-beta-CLIP complex so that CLIP is released. HLA-DM stabilizes MHC class II molecules until primary high affinity antigenic peptides are bound. The MHC II molecule bound to a peptide is then transported to the cell membrane surface. In B-cells, the interaction between HLA-DM and MHC class II molecules is regulated by HLA-DO. Primary dendritic cells (DCs) also to express HLA-DO. Lysosomal microenvironment has been implicated in the regulation of antigen loading into MHC II molecules, increased acidification produces increased proteolysis and efficient peptide loading.

Storage

Shipped at conditions	Blue Ice
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

Anti-MHC Class II antibody [6C6] (ab55152) is a House Mouse Monoclonal antibody and is validated for use in Flow Cyt, ICC/IF, IHC-P, WB.

Anti-MHC Class II antibody [6C6] (ab55152) has been cited over 33 times in peer reviewed journals and is trusted by the scientific community.

Abcams high quality validation processes ensure Anti-MHC Class II antibody [6C6] (ab55152) has high sensitivity and specificity.

Anti-MHC Class II antibody [6C6] (ab55152) specifically detects MHC Class II (UniProt ID: P04440; Molecular weight: 26kDa) and is sold in 100 ug selling sizes.

MHC Class II molecules are primarily expressed on professional antigen-presenting cells (APCs) like dendritic cells, macrophages, and B cells. In oncology, MHC Class II molecules play a crucial role by presenting exogenous antigens to CD4+ T cells, which is essential for initiating and regulating the immune response against tumors.

This product was changed from ascites to tissue culture supernatant on 13th Feb 2019. Please note that the dilutions may need to be adjusted accordingly. If you have any questions, please do not hesitate to contact our scientific support team.

Supplementary info

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

Activity summary	MHC Class II also known as MHC II or human leukocyte antigen (HLA) class II is a protein complex with a molecular mass generally around 55 kDa. This protein is mainly expressed on the surface of antigen-presenting cells such as dendritic cells macrophages and B cells. It plays an important role in the immune system by presenting extracellular antigens to T helper cells. MHC II molecules are composed of two polypeptide chains alpha and beta which associate to form a heterodimer on the cell surface.
Biological function summary	MHC Class II molecules facilitate the immune system's recognition and response to pathogens by presenting processed antigenic peptides to CD4+ T lymphocytes. This activity involves their assembly within the endosomal-lysosomal system where they bind peptides derived from endocytosed proteins. MHC II is part of the major histocompatibility complex which includes other related molecules such as MHC Class I (HLA class I). The binding and presentation of peptides are central for the coordination of adaptive immune responses enhancing pathogen clearance and maintaining immunological memory.

Pathways	MHC Class II operates within the antigen processing and presentation pathway important for adaptive immunity. Its interaction with CD4+ T cells stimulates downstream signaling pathways leading to T cell activation and differentiation. Related proteins in the antigen presentation pathway include invariant chain (Ii) which guides MHC II to the endosome and HLA-DM which facilitates peptide loading. Together these proteins and pathways work to ensure effective immune surveillance and response.
Associated diseases and disorders	Alterations in MHC Class II expression or function are associated with autoimmune diseases such as rheumatoid arthritis and type 1 diabetes. In these conditions improper antigen presentation may lead to an inappropriate immune response against self-proteins. The involvement of MHC II in disease is often linked to specific HLA alleles which vary among individuals and influence susceptibility to autoimmune disorders. Additionally the abnormal function of connected proteins like cytokines from activated T helper cells can exacerbate these immune conditions.

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

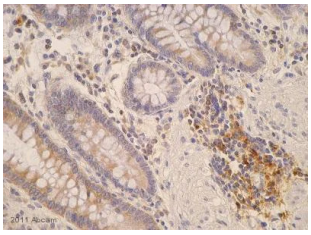
We do not recommend this combination. It is not covered by our product promise.

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.

5 product images

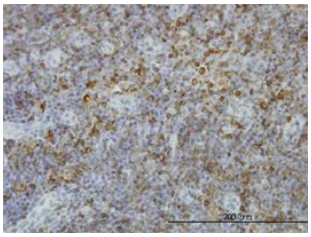


This image is courtesy of an anonymous customer review

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MHC Class II antibody [6C6] (ab55152)

MHC Class II Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-MHC Class II antibody

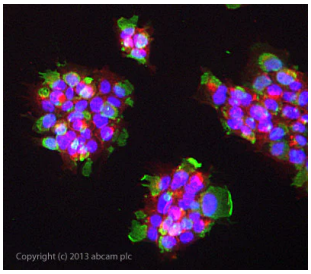
ab55152 staining MHC Class II in Human bowel tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 5% serum for 1 hour at 21°C; antigen retrieval was enzymatic. Samples were incubated with primary antibody (1/50 in milk) for 21 hours at 4°C. A Biotin-conjugated Rabbit anti-mouse polyclonal (1/300) was used as the secondary antibody.
This image was generated using the ascites version of the product.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MHC Class II antibody [6C6] (ab55152)

MHC Class II Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-MHC Class II antibody

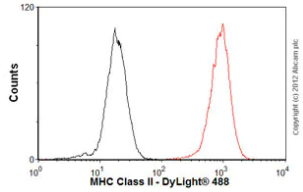
MHC Class II antibody (ab55152) used in immunohistochemistry at 5ug/ml on formalin fixed and paraffin embedded human lymph node.
This image was generated using the ascites version of the product.



Immunocytochemistry/ Immunofluorescence - Anti-MHC Class II antibody [6C6] (ab55152)

MHC Class II Immunocytochemistry/ Immunofluorescence staining using mouse Anti-MHC Class II antibody

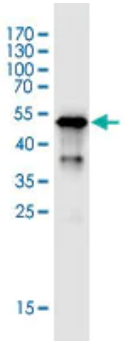
ICC/IF image of ab55152 stained A431 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody ab55152 at 10µg/ml overnight at +4°C. The secondary antibody (green) was DyLight® 488 goat anti- mouse (ab96879) IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.
This image was generated using the ascites version of the product.



Flow Cytometry - Anti-MHC Class II antibody [6C6] (ab55152)

MHC Class II Flow Cytometry staining using mouse Anti-MHC Class II antibody

Overlay histogram showing Raji cells stained with ab55152 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab55152, 0.5µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Raji cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.
This image was generated using the ascites version of the product.



Western blot - Anti-MHC Class II antibody [6C6] (ab55152)

Western blot against tagged recombinant protein immunogen using ab55152 MHC Class II antibody at 1ug/ml. Predicted band size of immunogen is 54 kDa
All lanes:
Western blot - Anti-MHC Class II antibody [6C6] (ab55152)

Predicted band size: 29 kDa

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