abcam

ab93560

PE Anti-MHC Class II (I-A/I-E) antibody [M5/114.15.2]

Anti-MHC Class II antibody [M5/114.15.2] conjugated to PE - suitable for flow cytometry, and reacts with mouse samples. Clone [M5/114.15.2] is a rat monoclonal antibody and one of the most commonly used clones for flow cytometry.

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Key facts

Isotype	IgG2b
Host species	Rat
Conjugation	PE
Excitation/Emission	Ex: 480;565nm, Em: 578nm
Storage buffer	pH: 7.2 Preservative: 0.09% Sodium azide Constituents: 0.87% Sodium chloride, 0.16% Sodium phosphate, 0.1% Gelatin
Form	Liquid
Clonality	Monoclonal
Clone number	M5/114.15.2
Purification technique	Affinity purification Protein G
Specificity	The M5/114.15.2 monoclonal antibody reacts with the mouse major histocompatibility complex class II, both I-A and I-E subregion encoded glycoproteins (I-A^b, I-A^d, I-A^q, I-E^d, I-E^k, not I-A^f, I-A^k, or I-A^s). It detects a polymorphic determinant present on B cells, monocytes, macrophages, dendritic cells, and activated T lymphocytes from mice carrying the H-2^b, H-2^d, H-2^q, H-2^p, H-2^r and H-2^u but not from mice carrying the H-2^s or H-2^f haplotypes. The M5/114 mnonclonal antibody is reported to inhibit I-A-restricted T cell responses of the H-2^b, H-2^d, H-2^q, H-2^u but not H-2^f, H-2^k, or H-2^s haplotypes.
Light chain type	kappa

Concentration	0.2 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Mouse
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	+4°C

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

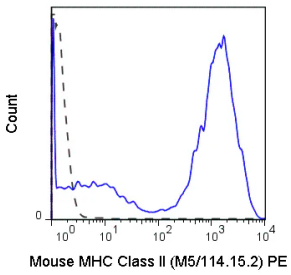
We do not recommend this combination. It is not covered by our product promise.

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1 product image



Flow Cytometry - PE Anti-MHC Class II (I-A/I-E) antibody [M5/114.15.2] (ab93560)

MHC Class II (I-A/I-E) Flow Cytometry staining using rat Anti-MHC Class II (I-A/I-E) antibody

Flow cytometry analysis showing C57Bl/6 splenocytes stained with ab93560 (solid line). The isotype control was Rat IgG2b PE (dashed line).

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