abcam

ab171283

Anti-MHC class I antibody [28-14-8] - Low endotoxin, Azide free

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.2 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Carrier free	Yes
Clone number	28-14-8
Purification technique	Affinity purification Protein G
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Expected

Species	Mouse
Dilution info	-

Notes	(Final test volume = 100 uL). ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

FuncS (Neut/Block)

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information Mr1

Function

Antigen-presenting molecule specialized in displaying microbial pyrimidine-based metabolites to alpha-beta T cell receptors (TCR) on innate-type mucosal-associated invariant T (MAIT) cells. In complex with B2M preferentially presents riboflavin-derived metabolites to semi-invariant TRAV1 TCRs on MAIT cells, guiding immune surveillance of the microbial metabolome at mucosal epithelial barriers (PubMed:15802267, PubMed:20581831, PubMed:24101382, PubMed:38537698). Signature pyrimidine-based microbial antigens are generated via non-enzymatic condensation of metabolite intermediates of the riboflavin pathway with by-products arising from other metabolic pathways such as glycolysis. Typical potent antigenic metabolites are 5-(2-oxoethylideneamino)-6-D-ribitylaminouracil (5-OE-RU) and 5-(2-oxopropylideneamino)-6-D-ribitylaminouracil (5-OP-RU), products of condensation of 5-amino-6-D-ribityaminouracil (5-A-RU) with glyoxal or methylglyoxal by-products, respectively. May present microbial antigens to various TRAV1-negative MAIT cell subsets, providing for unique recognition of diverse microbes, including pathogens that do not synthesize riboflavin. Upon antigen recognition, elicits rapid innate-type MAIT cell activation to eliminate pathogenic microbes by directly killing infected cells (By similarity). During T cell development, drives thymic selection and post-thymic terminal differentiation of MAIT cells in a process dependent on commensal microflora (PubMed:12634786, PubMed:31113973). Acts as an immune sensor of cancer cell metabolome. May present a tumor-specific or -associated metabolite essential for cancer cell survival to a pan-cancer TCR on a non-MAIT CD8-positive T cell clone, triggering T cell-mediated killing of a wide range of cancer cell types (By similarity). May present tumor-enriched pyridoxal and pyridoxal 5'-phosphate antigens, enabling preferential recognition of cancer cells (By similarity). Presents nucleobase carbonyl adducts generated during oxidative stress. Captures M3Ade, a nucleobase adduct composed of one adenine modified by a malondialdehyde trimer, for recognition by MR1-restricted T cell clones expressing a polyclonal TCR repertoire (By similarity).

Storage

Shipped at conditions	Blue Ice
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

Less than 0.001 ng/µg antibody, as determined by the LAL assay.

Supplementary info

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

Activity summary	MHC class I also known as MHC-1 or simply MHC I is a molecule playing an important role in the immune system. The molecule is a heterodimer composed of a heavy chain weighing around 45 kDa and a light chain. MHC class I molecules are expressed on nearly all nucleated cells in the body. They present peptide fragments from intracellular proteins to CD8+ T cells helping the immune system recognize and destroy infected or cancerous cells. Alternate names like H-2Kd/H-2Dd in mice highlight its role in antigen presentation across different species.
Biological function summary	The molecules of MHC class I form part of the adaptive immune system. They act as a complex with peptides which are derived from proteins degraded by the proteasome. The peptide-MHC I complex travels to the cell surface where it engages with the T cell receptor (TCR) on cytotoxic T cells. This interaction is essential for immune surveillance ensuring the body identifies cells that might compromise health such as those infected by viruses or transformed malignantly.
Pathways	The function of MHC class I integrates into the antigen processing and presentation pathways. It is pivotal in the proteasome-dependent pathway for processing endogenous antigens. Proteins like TAP (transporter associated with antigen processing) assist in transporting peptides into the endoplasmic reticulum for loading onto MHC class I. This pathway is central to cellular immunity and intersects with various immune response cascades.
Associated diseases and disorders	MHC class I has associations with autoimmune disorders and certain viral infections. Aberrant expression or mutations can lead to diseases like Ankylosing Spondylitis or impact responses to chronic viral infections such as HIV. The involvement of MHC class I in presenting viral peptides often links it to immune

evasion mechanisms utilizable by viruses. Hence this protein works closely with immune system proteins like cytokines influencing disease outcomes.

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.

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