abcam

ab245240

Anti-CD94 antibody [EPR23229-138]

Recombinant | RabMAb

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	EPR23229-138
Purification technique	Affinity purification Protein A
Concentration	0.47 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/12500
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information KLRD1

Function

Immune receptor involved in self-nonself discrimination. In complex with KLRC1 or KLRC2 on cytotoxic and regulatory lymphocyte subsets, recognizes non-classical major histocompatibility (MHC) class Ib molecule HLA-E loaded with self-peptides derived from the signal sequence of classical MHC class Ia and non-classical MHC class Ib molecules (PubMed:10023772, PubMed:18064301, PubMed:18083576, PubMed:37264229, PubMed:9486650, PubMed:9754572). Enables cytotoxic cells to monitor the expression of MHC class I molecules in healthy cells and to tolerate self (PubMed:12387742, PubMed:18064301, PubMed:9430220). Primarily functions as a ligand binding subunit as it lacks the capacity to signal. KLRD1-KLRC1 acts as an immune inhibitory receptor. Key inhibitory receptor on natural killer (NK) cells that regulates their activation and effector functions (PubMed:30860984, PubMed:9430220, PubMed:9485206, PubMed:9486650). Dominantly counteracts T cell receptor signaling on a subset of memory/effector CD8-positive T cells as part of an antigen-driven response to avoid autoimmunity (PubMed:12387742). On intraepithelial CD8-positive gamma-delta regulatory T cells triggers TGFB1 secretion, which in turn limits the cytotoxic programming of intraepithelial CD8-positive alpha-beta T cells, distinguishing harmless from pathogenic antigens (PubMed:18064301). In HLA-E-rich tumor microenvironment, acts as an immune inhibitory checkpoint and may contribute to progressive loss of effector functions of NK cells and tumor-specific T cells, a state known as cell exhaustion (PubMed:30503213, PubMed:30860984). Upon HLA-E-peptide binding, transmits intracellular signals through KLRC1 immunoreceptor tyrosine-based inhibition motifs (ITIMs) by recruiting INPP5D/SHIP-1 and INPPL1/SHIP-2 tyrosine phosphatases to ITIMs, and ultimately opposing signals transmitted by activating receptors through dephosphorylation of proximal signaling molecules (PubMed:12165520, PubMed:9485206). KLRD1-KLRC2 acts as an immune activating receptor (PubMed:15940674, PubMed:9655483). On cytotoxic lymphocyte subsets recognizes HLA-E loaded with signal sequence-derived peptides from non-classical MHC class Ib HLA-G molecules, likely playing a role in the generation and effector functions of adaptive NK cells and in maternal-fetal tolerance during pregnancy (PubMed:30134159, PubMed:9754572). Regulates the effector functions of terminally differentiated cytotoxic lymphocyte subsets, and in particular may play a role in adaptive NK cell response to viral infection (PubMed:20952657, PubMed:21825173). Upon HLA-E-peptide binding, transmits intracellular signals via the adapter protein TYROBP/DAP12, triggering the phosphorylation of proximal signaling molecules and cell activation (PubMed:15940674, PubMed:9655483). (Microbial infection) Viruses like human cytomegalovirus have evolved an escape mechanism whereby virus-induced down-regulation of host MHC class I molecules is coupled to the binding of viral peptides to HLA-E, restoring HLA-E expression

and inducing HLA-E-dependent NK cell immune tolerance to infected cells. Recognizes HLA-E in complex with human cytomegalovirus UL40-derived peptide (VMAPRTLIL) and inhibits NK cell cytotoxicity. (Microbial infection) May recognize HLA-E in complex with HIV-1 gag/Capsid protein p24-derived peptide (AISPRTLNA) on infected cells and may inhibit NK cell cytotoxicity, a mechanism that allows HIV-1 to escape immune recognition. (Microbial infection) Upon SARS-CoV-2 infection, may contribute to functional exhaustion of cytotoxic NK cells and CD8-positive T cells (PubMed:32859121). On NK cells, may recognize HLA-E in complex with SARS-CoV-2 S/Spike protein S1-derived peptide (LQPRTFLL) expressed on the surface of lung epithelial cells, inducing NK cell exhaustion and dampening antiviral immune surveillance (PubMed:32859121).

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

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.

Supplementary info

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

Activity summary	CD94 also known as killer cell lectin-like receptor subfamily D member 1 (KLRD1) plays a significant mechanical role in the immune system. This protein forms part of a receptor family involved in natural killer (NK) cell function. CD94 typically assembles on the cell surface as a heterodimer often pairing with NKG2 proteins. Weighing approximately 30 kDa CD94 mainly exhibits expression on NK cells and a subset of T cells where it contributes to immune regulation.
Biological function summary	CD94 is essential in recognizing and binding to non-classical MHC class I molecules when it pairs with NKG2 molecules such as NKG2A or NKG2C. This dimer forms a complex receptor which plays an important role in modulating NK cell activity. Through this receptor complex CD94 influences the immune response by either inhibiting or activating NK cells depending on its NKG2 partner. This regulation helps maintain a balanced immune response preventing excessive activation and autoimmunity.
Pathways	CD94 interacts with the signaling pathways related to the immune response. In particular it is involved in the natural killer cell lectin-like receptor signaling pathway. This pathway manages the activation and inhibition of NK cells integrating signals received through various receptors including CD94/NKG2 dimers. Associated proteins like DAP12 may amplify these signals which ultimately influence cytotoxic activities and cytokine production.
Associated diseases and disorders	CD94 has notable connections with conditions such as cancer and viral infections. For example certain tumors manipulate CD94 expression on NK cells to evade immune surveillance. Additionally alterations in CD94 and its partner molecules like NKG2A have been observed in viral infections possibly affecting how the immune system responds. Understanding CD94's relationship with these diseases can offer insights into potential therapeutic strategies targeting immune regulation.

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

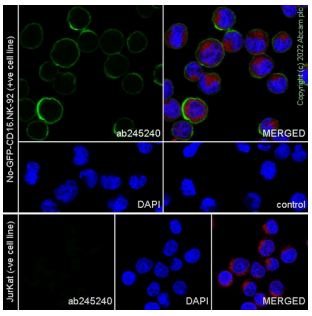
We do not recommend this combination. It is not covered by our product promise.

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.

4 product images



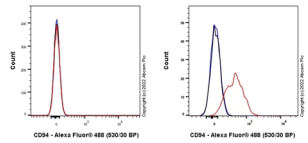
Immunocytochemistry/ Immunofluorescence - Anti-CD94 antibody [EPR23229-138] (ab245240)

CD94 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-CD94 antibody

Immunofluorescent analysis of 4% Paraformaldehyde No-GFP-CD16.NK-92 (human lymphoblast natural killer cells labelling CD94 with ab254240 at 1/100 (5 µg/ml) dilution, followed by AlexaFluor®488 Goat anti-Rabbit secondary antibody (ab150077) at 1/1000 2 µg/ml dilution (Green). Confocal image showing membranous staining in No-GFP-CD16.NK-92 cell line is observed.
ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 µg/ml dilution (Red). The Nuclear counterstain was DAPI (Blue).

Negative control: Jurkat （PMID: 9034158）

Secondary antibody only control: Secondary antibody is AlexaFluor®488 Goat anti-Rabbit secondary antibody (ab150077) at 1/1000 2 µg/ml dilution.

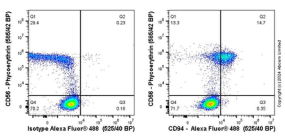


Flow Cytometry - Anti-CD94 antibody [EPR23229-138] (ab245240)

CD94 Flow Cytometry staining using rabbit Anti-CD94 antibody

Flow cytometric analysis of Jurkat (human T cell leukemia T lymphocyte) (Left) and No-GFP-CD16.NK-92 (human lymphoblast natural killer cells labelling CD94) (Right) with ab254240 at 1/50 dilution (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Goat anti rabbit IgG (Alexa Fluor® 488) (ab150081) at 1/2000 dilution was used as the secondary antibody.
Negative control: Jurkat (PMID: 9034158)

Gated on viable cells.



Flow Cytometry - Anti-CD94 antibody [EPR23229-138] (ab245240)

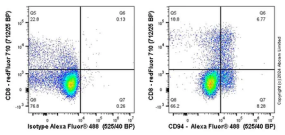
CD94 Flow Cytometry staining of human peripheral blood mononuclear cells (PBMCs) using rabbit Anti-CD94 antibody

Flow cytometry staining of human peripheral blood mononuclear cells (PBMCs) with ab245240 (right) or Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (left). PBMCs were incubated for 30 mins on ice in 1x PBS containing 10 µg/ml human IgG and 10 % normal goat serum to block FC receptors and non-specific protein-protein interaction followed by the antibody ab245240 or Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control

(ab172730) (1x 10^6 in 100 µl at 0.04 µg/ml (1/12500 dilution)) for 30 mins on ice. The cells were simultaneously stained with CD56.

The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 dilution for 30 mins on ice

Acquisition of >30000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter. Events were gated on live cells.



Flow Cytometry - Anti-CD94 antibody [EPR23229-138] (ab245240)

CD94 Flow Cytometry staining of human peripheral blood mononuclear cells (PBMCs) using rabbit Anti-CD94 antibody

Flow cytometry staining of human peripheral blood mononuclear cells (PBMCs) with ab245240 (right) or Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (left). PBMCs were incubated for 30 mins on ice in 1x PBS containing 10 µg/ml human IgG and 10 % normal goat serum to block FC receptors and non-specific protein-protein interaction followed by the antibody ab245240 or Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (1x 10^6 in 100 µl at 0.04 µg/ml (1/12500 dilution)) for 30 mins on ice. The cells were simultaneously stained with CD8.

The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 dilution for 30 mins on ice

Acquisition of >30000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter. Events were gated on live cells.

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