abcam

ab272350

Alexa Fluor® 700 Anti-CD94 antibody [HP-3D9]

Anti-CD94 antibody [HP-3D9] conjugated to Alexa Fluor® 700 - suitable for flow cytometry, and reacts with human samples. Clone [HP-3D9] is a mouse monoclonal antibody.

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Key facts

Isotype	IgG1
Host species	Mouse
Conjugation	Alexa Fluor® 700
Excitation/Emission	Ex: 702nm, Em: 723nm
Storage buffer	pH: 7.4 Preservative: 0.1% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing KLRD1 protein. The exact immunogen used to generate this antibody is proprietary information. Database link Q13241
Clone number	HP-3D9
Purification technique	Size-exclusion chromatography
Light chain type	kappa
Purification notes	Purified from TCS.

Reactivity data

Flow Cyt

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	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

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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

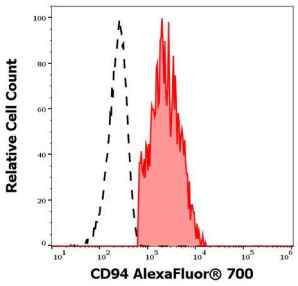
We do not recommend this combination. It is not covered by our product promise.

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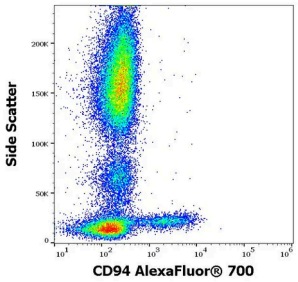
2 product images



Flow Cytometry - Alexa Fluor® 700 Anti-CD94 antibody [HP-3D9] (ab272350)

CD94 Flow Cytometry staining using mouse Anti-CD94 antibody

Separation of lymphocytes (Red) from neutrophil granulocytes (dashed) in flow cytometric analysis labeling CD94 using ab272350. (4 µl reagent / 100 µl of peripheral whole blood).



Flow Cytometry - Alexa Fluor® 700 Anti-CD94 antibody [HP-3D9] (ab272350)

CD94 Flow Cytometry staining using mouse Anti-CD94 antibody

Flow cytometric analysis of human peripheral whole blood labeling CD94 with ab272350 at 4µl reagent per milion cells in 100 µl of cell suspension.

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