abcam

ab22378

# Anti-CD8 alpha antibody [YTS169.4]

## Key facts

| | |
|---|---|
| **Isotype** | IgG2b |
| **Host species** | Rat |
| **Storage buffer** | pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 6.97% L-Arginine |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Clone number** | YTS169.4 |
| **Purity** | IgG fraction |
| **Concentration** | 1 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## Flow Cyt

### Tested

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|---|---|
| **Species** | Mouse |
| **Dilution info** | 0.1-1 µg for $10^6$ Cells |
| **Notes** | ab18536 - Rat monoclonal IgG2b, is suitable for use as an isotype control with this antibody. |

## Target data

See full target information Cd8a

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|---|---|
| **Function** | Integral membrane glycoprotein that plays an essential role in the immune response and serves multiple functions in responses against both external and internal offenses. In T-cells, functions primarily as a coreceptor for MHC class I molecule:peptide complex. The antigens presented by class I peptides are derived from cytosolic proteins while class II derived from extracellular proteins. Interacts simultaneously with the T-cell receptor (TCR) and the MHC class I proteins presented by antigen presenting cells (APCs). In turn, recruits the Src kinase LCK to the vicinity of the TCR-CD3 complex. LCK then initiates different intracellular signaling pathways by phosphorylating various substrates ultimately leading to lymphokine production, motility, adhesion and activation of cytotoxic T-lymphocytes (CTLs). This mechanism enables CTLs to recognize and eliminate infected cells and tumor cells. In NK-cells, the presence of CD8A homodimers at the cell surface provides a survival mechanism allowing conjugation and lysis of multiple target cells. CD8A homodimer molecules also promote the survival and differentiation of activated lymphocytes into memory CD8 T-cells. |

## Storage

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| **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

ab22378 is not expected to work in standard western blots, under denaturing conditions, or in IHC on formalin-fixed tissue. To our knowledge, ab22378 will only stain frozen sections or fresh cells, and will only immunoprecipitate the antigen from cell lysates in mild detergents such as NP40 or Triton-X100.

**Want a custom formulation?**

This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

## Supplementary info

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

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|---|---|
| **Activity summary** | CD8 alpha also known as CD8A or CD8 protein is a glycoprotein subunit expressed on the surface of cytotoxic T lymphocytes. It has a mass of approximately 32 kDa. Found on the surface cell membrane CD8 alpha functions primarily in the immune response specifically in the recognition of antigens bound to major histocompatibility complex (MHC) class I molecules. Often scientists use CD8 antibodies for detection and CD8 IHC or immunohistochemistry for localization studies. |
| **Biological function summary** | The CD8 alpha protein plays a critical role in T-cell mediated immune responses. It forms a heterodimer with the CD8 beta chain creating the CD8 alpha-beta complex that strengthens T-cell interaction with antigen-presenting cells. CD8 alpha also helps in signaling processes that activate T cells equipping them to destroy infected or malignant cells. Researchers often study CD8 alpha peptides to understand its interactions better. |
| **Pathways** | CD8 alpha is integral to the T-cell receptor signaling pathway and the cytotoxic T lymphocyte (CTL) pathway. The T-cell receptor complex which includes the CD8 molecule transmits signals that are important for T-cell activation and function. CD8 interacts with key proteins such as the T-cell receptor (TCR) and MHC class I molecules facilitating targeted responses against pathogens. These pathways highlight CD8 alpha's role in adaptive immunity. |
| **Associated diseases and disorders** | CD8 alpha is most prominently associated with viral infections and cancer. Conditions like HIV and some forms of leukemia show altered CD8 function highlighting the protein's role in immune surveillance. In HIV infection for instance CD8 T cells reduce in number impairing the immune response. CD8 alpha's connection to the immune system places it alongside other immune proteins such as CD4 and MHC molecules in the context of immune dysfunction. |

## 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.

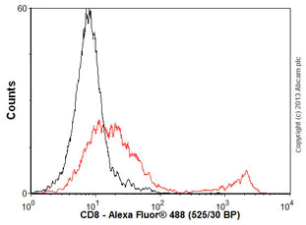
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Full details and terms and conditions can be found here:
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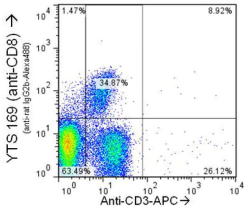
## 3 product images




### Flow Cytometry - Anti-CD8 alpha antibody [YTS169.4] (ab22378)

CD8 alpha Flow Cytometry staining using rat Anti-CD8 alpha antibody

Overlay histogram showing mouse spleen cells (C57BL/6) labeling CD8 alpha with ab22378 (red line). The cells were incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab22378, 0.1µg/1x$10^6$ cells) for 30 min at 4°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rat IgG (H&L) (ab150157) at 1/2000 dilution for 30 min at 4°C. Isotype control antibody (black line) was rat IgG2b [RTK4530] (ab18541, 2µg/1x$10^6$ cells) used under the same conditions. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.




### Flow Cytometry - Anti-CD8 alpha antibody [YTS169.4] (ab22378)

CD8 alpha Flow Cytometry staining using rat Anti-CD8 alpha antibody

Normal mouse (CBA) spleen cells (red cell lysed) double stained with ab22378 (0.3 µg/mL, detected with Alexa Fluor® 488-conjugated monoclonal mouse anti-rat antibody) and an APC conjugated hamster anti-mouse CD3 antibody. ab22378 stains an expected subpopulation of CD8 alpha positive T cells.

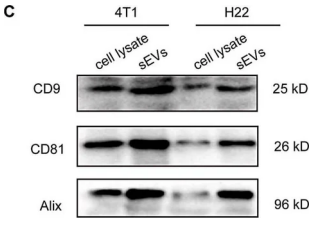



Image collected and cropped by CiteAb under a CC-BY license from the publication

### Western blot - Anti-CD8 alpha antibody [YTS169.4] (ab22378)

CD8 alpha Western blot staining using rat Anti-CD8 alpha antibody

Western Blotting using Anti-CD8 alpha antibody [YTS169.4], ab22378. Publication image from Lin, W. et al., 2020, Theranostics, 32308755. Legend direct from paper.

Characterization of small extracellular vesicles (sEVs). (A) Particle size distribution measured via nanoparticle tracking analysis (NTA). (B) sEV morphology revealed via transmission electron microscopy (TEM). (C) Western blot analysis of specific sEV-specific surface markers.

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