abcam

ab11089

Anti-CD3 antibody [CD3-12]

Anti-CD3 antibody [CD3-12] (ab11089) is a rat monoclonal antibody detecting CD3 in **Western Blot, Flow Cytometry, IHC-P**. Suitable for **Human, Mouse, Rat**.

- Over 100 publications
- Trusted since 2004

Lab Essentials | Recombinant

Key facts

Isotype	IgG1
Host species	Rat
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	Synthetic Peptide within Human CD3E. The exact immunogen used to generate this antibody is proprietary information. Database link P07766
Clone number	CD3-12
Purification technique	Affinity purification Protein A
Specificity	IHC-P is not recommended in Human samples.
Concentration	0.916 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	5 µg/mL
Notes	-

Species	Rat
Dilution info	1/200
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Flow Cyt

Tested

Species	Human

Dilution info	1 µg/mL
Notes	-

Species	Mouse
Dilution info	5 µg/mL
Notes	-

Expected

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

Target data

See full target information CD3E

Function

Part of the TCR-CD3 complex present on T-lymphocyte cell surface that plays an essential role in adaptive immune response (PubMed:15294938, PubMed:15546002, PubMed:2470098, PubMed:40592325, PubMed:8490660). When antigen presenting cells (APCs) activate T-cell receptor (TCR), TCR-mediated signals are transmitted across the cell membrane by the CD3 chains CD3D, CD3E, CD3G and CD247/CD3Z (PubMed:2470098, PubMed:40592325). All CD3 chains contain immunoreceptor tyrosine-based activation motifs (ITAMs) in their cytoplasmic domain (PubMed:2470098, PubMed:40592325). Upon TCR engagement, these motifs become phosphorylated by Src family protein tyrosine kinases LCK and FYN, resulting in the activation of downstream signaling pathways (PubMed:2470098, PubMed:40592325). CD3E ITAM phosphorylation creates docking sites for the protein kinase ZAP70 leading to ZAP70 phosphorylation and its conversion into a catalytically active enzyme (By similarity). In addition of this role of signal transduction in T-cell activation, CD3E plays an essential role in correct T-cell development (By similarity). Also participates in internalization and cell surface down-regulation of TCR-CD3 complexes via endocytosis sequences present in CD3E cytosolic region (PubMed:10384095, PubMed:26507128). In addition to its role as a TCR coreceptor, it serves as a receptor for ITPRIPL1 (PubMed:38614099). Ligand recognition inhibits T-cell activation by promoting interaction with NCK1, which prevents CD3E-ZAP70 interaction and blocks the ERK-NFkB signaling cascade and calcium influx (PubMed:12110186, PubMed:38614099).

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

Product Specifications

Anti-CD3 antibody [CD3-12] (ab11089) is a rat recombinant monoclonal antibody and is validated for use in in human, mouse, rat samples.
Anti-CD3 antibody [CD3-12] (ab11089) specifically detects CD3 (UniProt ID: P07766; Molecular weight: 21kDa) and is sold in 100 µg and 1 mg selling sizes.

Quality and Validation

Abcam's high quality manufacturing and validation processes ensure Anti-CD3 antibody [CD3-12] (ab11089) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.
Anti-CD3 antibody [CD3-12] (ab11089) has been cited over 104 times in peer reviewed journals and is trusted by the scientific community.
Anti-CD3 antibody [CD3-12] (ab11089) has 18 independent reviews from customers.

Related Products

Conjugation-ready, carrier free format available for antibody clone CD3-12 - ab255972.
Antibody clone CD3-12 is also available pre-conjugated to a variety of labels for your convenience - FITC (ab34722).

Target Information

CD3, or Cluster of Differentiation 3, is a protein complex and T cell co-receptor that plays a crucial role in the activation of T cells, which are essential for the immune response. In oncology, CD3 is particularly significant due to its involvement in cancer immunotherapy. CD3 is targeted to enhance the body's ability to fight cancer. Bispecific antibodies (bsAbs) that target CD3 and a tumor antigen bring T cells into close proximity with cancer cells, promoting their destruction.

This product has switched from a hybridoma to recombinant production method on 1st November 2024.

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.

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

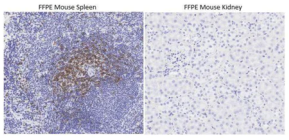
We do not recommend this combination. It is not covered by our product promise.

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.

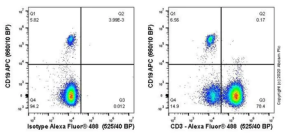
7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD3 antibody [CD3-12] (ab11089)

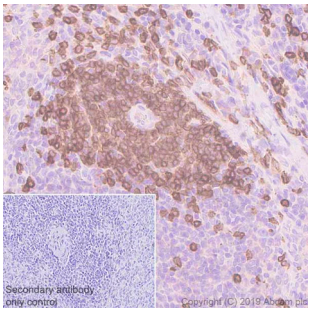
CD3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-CD3 antibody

Immunohistochemical analysis of paraffin-embedded Mouse spleen and kidney tissue labeling CD3 with ab11089 at 5 µg/mL, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins.



Flow Cytometry (Intracellular) - Anti-CD3 antibody [CD3-12] (ab11089)

Flow cytometric analysis of human peripheral blood mononuclear cells (PMBCs) labelling CD3 with ab11089 at 5 µg/mL (right) compared with a Rat IgG1k isotype control (left).



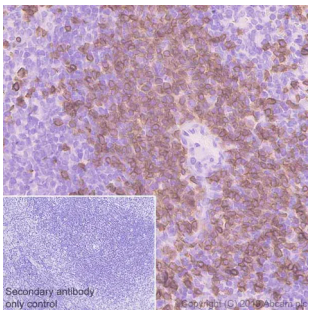
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD3 antibody [CD3-12] (ab11089)

CD3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Rat spleen using rat Anti-CD3 antibody

Immunohistochemical analysis of paraffin-embedded rat spleen tissue labeling CD3 with ab11089 at 1/200 dilution, followed by a Goat Anti-Rat IgG H&L (HRP polymer) secondary (ab214882) ready to use.
Membranous staining on rat spleen.

Counterstained with Hematoxylin.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



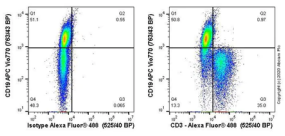
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD3 antibody [CD3-12] (ab11089)

CD3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse spleen using rat Anti-CD3 antibody

Immunohistochemical analysis of paraffin-embedded mouse spleen tissue labeling CD3 with ab11089 at 1/200 dilution, followed by a Goat Anti-Rat IgG H&L (HRP polymer) secondary (ab214882) ready to use.
Membranous staining on mouse spleen.

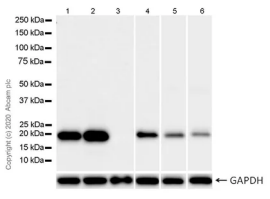
Counterstained with Hematoxylin.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Flow Cytometry (Intracellular) - Anti-CD3 antibody [CD3-12] (ab11089)

Flow cytometric analysis of Mouse spleen cells labelling CD3 with ab11089 at 1 µg/mL (right) compared with a Rat IgG1k isotype control (left).



Western blot - Anti-CD3 antibody [CD3-12] (ab11089)

CD3 Western blot staining using rat Anti-CD3 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602).

Exposure time: Lanes 1-4: 6 seconds, Lane 5： 3 seconds, Lane 6： 1 second.

Negative control: Raji
All lanes:
Western blot - Anti-CD3 antibody [CD3-12] (ab11089) at 1/1000 dilution

Lane 1:
Jurkat (human T cell leukemia T lymphocyte), whole cell lysate at 20 µg

Lane 2:
MOLT-4 (human lymphoblastic leukemia T lymphoblast), whole cell lysate at 20 µg

Lane 3:
Raji (human Burkitt's lymphoma B lymphocyte), whole cell lysate at 20 µg

Lane 4:
EL4 (mouse lymphoma T lymphocyte), whole cell lysate at 20 µg

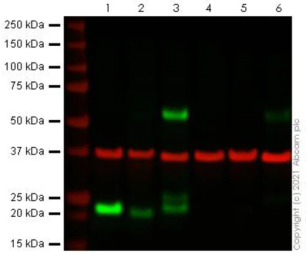
Lane 5:
Mouse thymus tissue lysate at 20 µg

Lane 6:
Rat thymus tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rat IgG H&L (HRP) (ab205720) at 1/5000 dilution

Observed band size: 23 kDa



Western blot - Anti-CD3 antibody [CD3-12] (ab11089)

Western blot analysis of ab11089 at 1 µg/mL.
All lanes:
Western blot - Anti-CD3 antibody [CD3-12] (ab11089) at 1 µg/mL

Lane 1:
Jurkat whole cell lysate at 20 µg

Lane 2:
Human thymus tissue lysate at 20 µg

Lane 3:
Mouse thymus tissue lysate at 20 µg

Lane 4:
Raji whole cell lysate at 20 µg

Lane 5:
Human brain tissue lysate at 20 µg

Lane 6:
Mouse brain tissue lysate at 20 µg

Secondary

Lanes 1 - 6:
Goat Anti-Rat IgG H&L (IRDye® 800CW) at 1/20000 dilution

Lanes 1 - 6:
Goat Anti-Rabbit IgG H&L (IRDye® 680RD) preadsorbed at 1/20000 dilution

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