abcam

ab45689

Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal

Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689) is a rabbit monoclonal antibody detecting Calmodulin 1/2/3 in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, IHC-Fr**. Suitable for **Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 60 publications
- Trusted since 2006

Recombinant | RabMAb | 20ul selling size

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	EP799Y
Purity	Tissue culture supernatant

Reactivity data

WB

Tested

Species	Human

Dilution info	1/1000 - 1/10000
Notes	-

Species	Mouse
Dilution info	1/1000 - 1/10000
Notes	-

Species	Rat
Dilution info	1/1000 - 1/10000
Notes	-

IP

Tested

Species	Human
Dilution info	1/20 - 1/50
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50 - 1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Mouse
Dilution info	1/100

Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/2000
Notes	Mouse and rat species reactivity is recommended based on WB results, we do not guarantee IHC for mouse or rat. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

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

IHC-Fr

Expected

Species	Human
Dilution info	-
Notes	Mouse and rat species reactivity is recommended based on WB results, we do not guarantee IHC for mouse or rat.

Predicted

Species	Mouse, Rat

Dilution info	-
Notes	-

Target data

See full target information CALM3

Function	Calmodulin acts as part of a calcium signal transduction pathway by mediating the control of a large number of enzymes, ion channels, aquaporins and other proteins through calcium-binding (PubMed:16760425, PubMed:31454269). Calcium-binding is required for the activation of calmodulin (PubMed:16760425, PubMed:31454269, PubMed:35568036). Among the enzymes to be stimulated by the calmodulin-calcium complex are a number of protein kinases, such as myosin light-chain kinases and calmodulin-dependent protein kinase type II (CaMK2), and phosphatases (PubMed:16760425, PubMed:35568036). Together with CCP110 and centrin, is involved in a genetic pathway that regulates the centrosome cycle and progression through cytokinesis (PubMed:16760425). (Microbial infection) Required for C.violaceum CopC and S.flexneri OspC3 arginine ADP-riboxanase activity.

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

What is this antibody validated in?
Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunohistochemistry (IHC-Fr) in Human, Mouse, Rat samples.

What is the molecular weight of Calmodulin 1/2/3?
Anti-Calmodulin 1/2/3 [EP799Y] - C-terminal (ab45689) specifically detects a band for Calmodulin 1/2/3 (UniProt:

P0DP23) at a molecular weight of 17kDa.

Trusted by the scientific community
Anti-Calmodulin 1/2/3 [EP799Y] - C-terminal (ab45689) was first used in a scientific publication in 2006 and has been cited over 60 times in peer-reviewed journals.

Reviewed by scientists
Anti-Calmodulin 1/2/3 [EP799Y] - C-terminal (ab45689) has over 15 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [EP799Y] also available for your convenience: ab45689, HRP - ab199558, Carrier free - ab214793

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Calmodulin also known as calmoduline is a multifunctional intermediate calcium-binding protein expressed widely in eukaryotic cells. This small protein has a molecular weight of approximately 16.7 kDa. Calmodulin 1 2 and 3 serve as the key isoforms facilitating a variety of calcium-mediated processes. You can find it in cellular contexts where calcium signaling plays a regulatory role. Due to its ubiquity it acts as a mediator in numerous cellular responses.
Biological function summary	Calmodulin modulates intracellular activities by binding to calcium ions and interacting with a wide array of target proteins. It is not part of a molecular complex but can partner with proteins like kinases and phosphatases leading to downstream effects on diverse cellular processes. Calmodulin function extends to muscle contraction cell division and signal transduction impacting both basal and specialized cellular functions.
Pathways	Calmodulin operates as a functional link in calcium signaling and the MAPK signaling pathways. In these pathways calmodulin influences the activity of

proteins such as myosin light-chain kinase and calmodulin-dependent protein kinase. These interactions showcase calmodulin's pivotal role in translating calcium signaling into cellular responses connecting several signaling cascades.

Associated diseases and disorders

Calmodulin has associations with certain cardiovascular diseases and neurodegenerative conditions. Its relationship with ion channel dysfunction links it to disorders like long QT syndrome. Additionally calmodulin interacts with proteins like sodium-calcium exchangers or other ion-handling channels reflecting its involvement in maintaining cellular ionic balance and consequently its implication in pathological states when dysregulated.

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

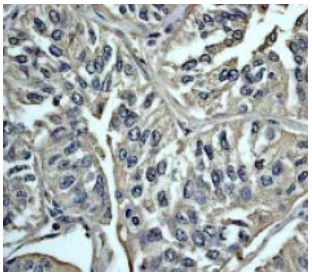
We do not recommend this combination. It is not covered by our product promise.

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.

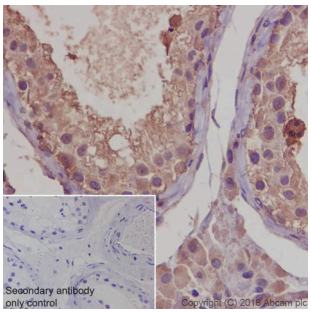
9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

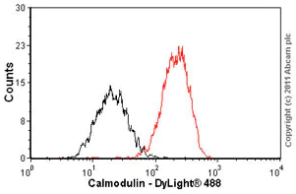
Calmodulin 1/2/3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Calmodulin 1/2/3 antibody

ab45689 at a 1:250 dilution staining Calmodulin in human urinary bladder carcinoma tissue by immunohistochemistry in paraffin embedded tissue.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

ab45689 staining Calmodulin in human testis tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/2000. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control: PBS in place of primary antibody (inset).



Flow Cytometry (Intracellular) - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

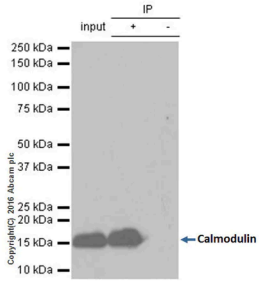
Calmodulin 1/2/3 Flow Cytometry (Intracellular) staining using rabbit Anti-Calmodulin 1/2/3 antibody

Overlay histogram showing MCF7 (Human breast adenocarcinoma cell line) cells stained with ab45689 (red line).
The cells were fixed with methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab45689, 1/50 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C.

Isotype control antibody (black line) was rabbit monoclonal IgG (0.5µg/1x10^6 cells) used under the same conditions.

Acquisition of >5,000 events was performed.

This antibody gave a decreased signal in MCF7 cells fixed with 4% paraformaldehyde (10 min)/permeabilized in 0.1% PBS-Tween used under the same conditions.

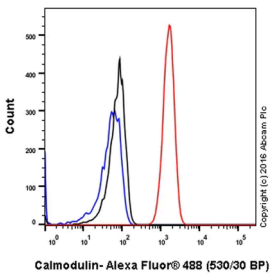


Immunoprecipitation - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

ab45689 immunoprecipitating Calmodulin. 10 µg of cell lysate was incubated with primary antibody at a dilution of 1/20 and VeriBlot for IP Detection Reagent (HRP) (ab131366) at a dilution of 1/10000.
Lane 1: Human skeletal muscle lysate (10 µg)
Lane 2: Human skeletal muscle lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab45689 in human skeletal muscle lysate

All lanes:
Immunoprecipitation - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

Observed band size: 16 kDa



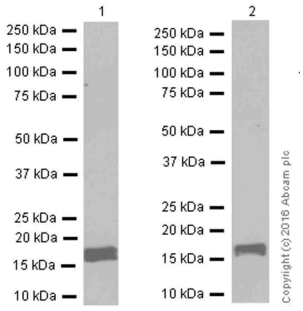
Flow Cytometry (Intracellular) - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

Calmodulin 1/2/3 Flow Cytometry (Intracellular) staining using rabbit Anti-Calmodulin 1/2/3 antibody

ab45689 staining Calmodulin in NIH/3T3 (Mouse embryo fibroblast cell line) cells by intracellular flow cytometry.
Cells were fixed with 4% paraformaldehyde and the sample was incubated with the primary antibody at a dilution of 1/100. A goat anti rabbit IgG (Alexa Fluorr® 488) at a dilution of 1/2000 was used as the secondary antibody.

Isoytype control: Rabbit monoclonal IgG (Black)

Unlabeled control: Cell without incubation with primary antibody and secondary antibody (Blue)



Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

Blocking and diluting buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689) at 1/10000 dilution

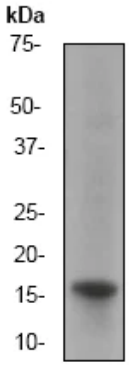
Lane 1:
RAW264.7 (mouse abelson murine leukemia virus-induced tumor) whole cell lysate at 15 µg

Lane 2:
C6 (rat glioma) whole cell lysate at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 17 kDa



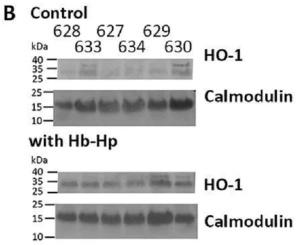
Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

All lanes:
Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689) at 1/5000 dilution

All lanes:
NIH/3T3 (Mouse embryo fibroblast cell line) cell lysate at 10 µg

Predicted band size: 17 kDa

Observed band size: 16 kDa



Burkard et al PLoS Pathog. 2017 Feb 23;13(2):e1006206. doi: 10.1371/journal.ppat.1006206. eCollection 2017 Feb. Fig 8. Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/

Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

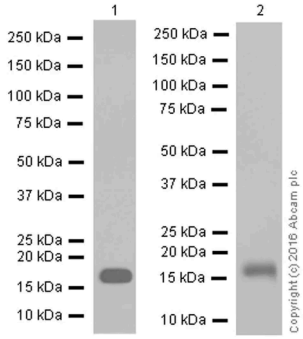
Calmodulin 1/2/3 Western blot staining using rabbit Anti-Calmodulin 1/2/3 antibody

ΔSRCR peripheral blood monocyte-derived macrophages (PMMs) still function as hemoglobin-haptoglobin (Hb-Hp) scavengers.
Porcine PMMs were incubated for 24 hours in the presence of 100 µg/mol Hb-Hp then lysed with reducing SDS sample buffer and HO-1 protein expression analyzed by western blot.

For full details please see paper.

All lanes:
Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

Predicted band size: 17 kDa



Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689)

Calmodulin 1/2/3 Western blot staining using rabbit Anti-Calmodulin 1/2/3 antibody

All lanes:
Western blot - Anti-Calmodulin 1/2/3 antibody [EP799Y] - C-terminal (ab45689) at 1/10000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma) whole cell lysate at 15 µg

Lane 2:
HCT 116 (human colorectal carcinoma) whole cell lysate at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 17 kDa, 40 kDa

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