abcam

ab239930

Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR3319
Purification technique	Affinity purification Protein A
Specificity	This antibody recognises the large subunit of Calpain
Concentration	0.983 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human, Mouse, Rat

Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

IHC-P

Tested

Species	Human

Dilution info	-
Notes	-

Expected

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

Target data

See full target information CAPN1

Function	Calcium-regulated non-lysosomal thiol-protease which catalyzes limited proteolysis of substrates involved in cytoskeletal remodeling and signal transduction (PubMed:19617626, PubMed:21531719, PubMed:2400579). Proteolytically cleaves CTBP1 at 'Asn-375', 'Gly-387' and 'His-409' (PubMed:23707407). Cleaves and activates caspase-7 (CASP7) (PubMed:19617626).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab239930 is the carrier-free version of ab108400.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	Calpain 1 also known as CAPN1 is a calcium-dependent cysteine protease with a mass of approximately 80 kDa. It exhibits calpain activity by cleaving substrate proteins in a regulated manner. Calpain 1 expresses in various tissues including muscle brain and lens suggesting its involvement in diverse cellular processes. The enzyme is part of a larger calpain family with calpain-1 calpain-2 and other isoforms that demonstrate differing substrate specificities and regulatory mechanisms.
Biological function summary	Calpain 1 participates in cellular functions such as signal transduction cell cycle progression and apoptosis. It is not part of a complex but operates independently to modulate cellular responses by processing different target proteins. Calpain protein activity impacts cytoskeletal remodeling and membrane repair important processes in cell mobility and stability. Through its proteolytic actions calpain 1 influences neural plasticity and muscle function demonstrating its broad biological significance.
Pathways	Calpain 1 functions within the calcium signaling and apoptotic pathways highlighting its role in regulating cellular survival and death. Calcium influx triggers calpain activity linking it to proteins such as calmodulin and calcineurin that also respond to calcium signals. Calpain-1 modulates apoptosis by targeting Bcl-2 family proteins influencing cell fate during stress responses. The calpain assay measures its activity providing insights into its contribution to these vital pathways.
Associated diseases and disorders	Calpain 1 connects to neurodegenerative diseases like Alzheimer's and muscular diseases such as muscular dystrophy. Alzheimer's disease features abnormal calpain activity affecting tau protein and amyloid precursor protein processing. In muscular dystrophy calpain-1's unregulated activity leads to excessive muscle degradation aggravating the disease condition. Its interaction with spectrin and dystrophin proteins suggests a mechanistic role in the pathogenesis of these disorders pinpointing calpain-1 as a potential therapeutic target.

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

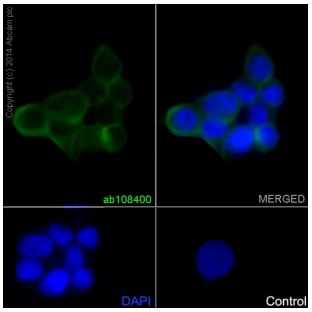
We do not recommend this combination. It is not covered by our product promise.

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.

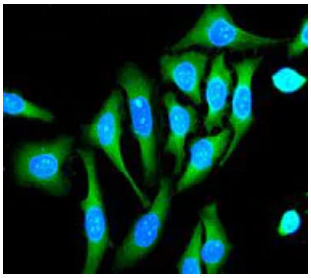
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free (ab239930)

Calpain 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Calpain 1 antibody

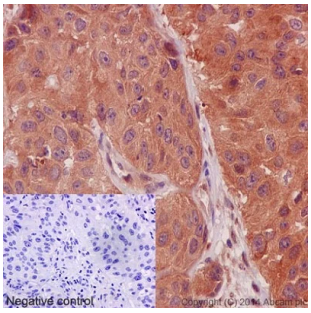
ab108400 staining Calpain 1 in the T-47D cell line by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with 4% Paraformaldehyde permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody (1/70). ab150077(1/500) an Alexa Fluor®488-conjugated Goat anti-rabbit IgG was used as the secondary antibody. Nuclei were counterstained with DAPI.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108400).



Immunocytochemistry/ Immunofluorescence - Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free (ab239930)

Calpain 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Calpain 1 antibody

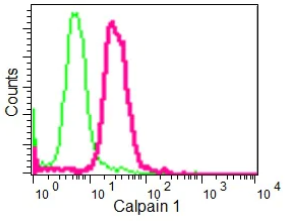
ab108400, unpurified, at 1/250 dilution staining Calpain in HeLa cells by Immunofluorescence. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108400).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free (ab239930)

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

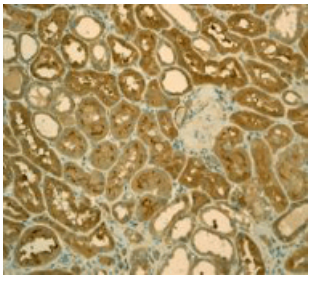
ab108400 staining Calpain 1 in Human transitional cell carcinoma of bladder tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed and paraffin-embedded, antigen retrieval was by heat mediation in Tris/EDTA buffer pH9. Samples were incubated with primary antibody (1/200). An undiluted HRP-conjugated mouse anti-rabbit IgG was used as the secondary antibody. Tissue counterstained with Hematoxylin. PBS was used in the negative control rather than the Primary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108400).



Flow Cytometry (Intracellular) - Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free (ab239930)

Calpain 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Calpain 1 antibody

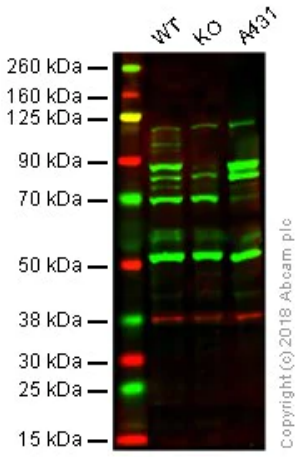
Overlay histogram showing Jurkat cells stained with ab108400 (red line) at 1/380 dilution. The cells were fixed with 2% paraformaldehyde. The secondary antibody used was a FITC conjugated goat anti-rabbit IgG at 1/150 dilution. Isotype control antibody (green line) was rabbit monoclonal IgG used under the same conditions.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108400).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free (ab239930)

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

ab108400, unpurified, at 1/500 dilution staining Calpain in Human kidney by Immunohistochemistry, Paraffin-embedded tissue.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108400).



Western blot - Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free (ab239930)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108400).
ab108400 was shown to recognize Calpain 1 in wild-type HAP1. A faint cross-reactive band was observed in CAPN1 (Calpain 1) knockout cells at 82 kDa when over-exposed. Due to the immunogen's homology with CAPN2 (Calpain 2 Uniprot: P17655), this band could correspond to the Calpain 2 protein. Please note that cross-reactivity with this protein has not been confirmed experimentally.

All lanes:
Western blot - Anti-Calpain 1 antibody [EPR3319] - BSA and Azide free (ab239930)

Lane 1:
Wild type HAP1 whole cell lysate

Lane 2:
CAPN1 (Calpain 1) knockout HAP1 whole cell lysate

Lane 3:
A431 whole cell lysate

Predicted band size: 82 kDa

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