abcam

ab101683

Anti-Calpain small subunit 1 antibody [SP81]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.6 Preservative: 0.1% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	SP81
Purification technique	Affinity purification Protein A/G
Concentration	0.043 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from TCS by protein A/G.

Reactivity data

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/20
Notes	-

Species	Rat
Dilution info	1/20
Notes	-

Species	Human
Dilution info	1/20
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	Antigen retrieval is recommeded: boil tissue section in 10mM citrate buffer, pH 6.0 for 10 min followed by cooling at RT for 20 min.

Expected

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

Target data

See full target information CAPNS1

Function	Regulatory subunit of the calcium-regulated non-lysosomal thiol-protease which catalyzes limited proteolysis of substrates involved in cytoskeletal remodeling and signal transduction. Essential for embryonic development (By similarity).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C

Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

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.

Supplementary info

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

Activity summary	Calpain small subunit 1 also known as CSS1 or CAPNS1 is a small protein with a molecular mass of approximately 28 kDa. CSS1 forms an essential part of the calpain protease system which includes both the catalytic large and regulatory small subunits. CSS1 is important for the stability and function of the calpain holoenzyme. It expresses in various tissues including brain muscle and kidney suggesting its widespread functional role in cellular processes.
Biological function summary	Several cellular processes involve the calpain protease system to which Calpain small subunit 1 belongs. CSS1 acts by regulating the proteolytic activity of calpain an enzyme complex critical for cellular signaling cytoskeletal remodeling and apoptosis. The small subunit plays an important role within the calpain complex facilitating the proper folding and activation of the catalytic subunit. This process ensures that calpain conforms to appropriate physiological conditions to exert its regulatory functions.
Pathways	The involvement of Calpain small subunit 1 in intracellular signaling pathways is significant. CSS1 plays a role in the calcium-dependent proteolytic pathway helping modulate the activity of proteins such as calpastatin the endogenous inhibitor of calpains. Calpain activity impacts many pathways including the cell cycle and apoptotic pathways. Through these pathways CSS1 contributes to cell proliferation differentiation and programmed cell death highlighting its multifunctional role in cellular homeostasis.
Associated diseases and disorders	Calpain small subunit 1 has a notable association with certain pathological conditions. Dysregulation of calpain activity due to alterations in CSS1 can contribute to neurodegenerative diseases like Alzheimer's disease and muscular disorders such as limb-girdle muscular dystrophy. In Alzheimer's disease abnormal calpain activation affects tau protein processing linking CSS1 indirectly with tau-related pathologies. Moreover in muscular disorders calpain plays a role in muscle

fiber degradation and repair where anomalies in CSS1 may impair muscle integrity and function.

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

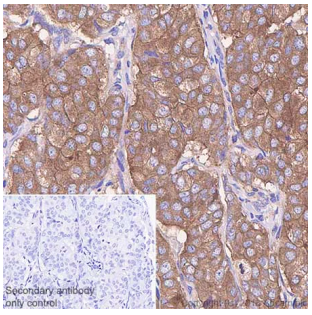
We do not recommend this combination. It is not covered by our product promise.

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.

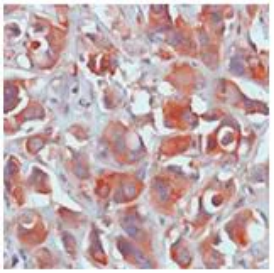
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calpain small subunit 1 antibody [SP81] (ab101683)

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

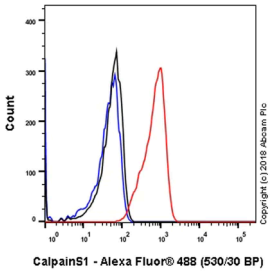
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human breast carcinoma tissue sections labeling Calpain small subunit 1 with ab101683 at 1/100 dilution (0.94 µg/ml). Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0, epitope retrieval solution 1) for 10mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Hematoxylin was used as a counterstain. Positive staining on human breast carcinoma, performed on a Leica Biosystems BOND™ RX instrument.
The section was incubated with ab101683 for 30 mins at room temperature.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calpain small subunit 1 antibody [SP81] (ab101683)

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

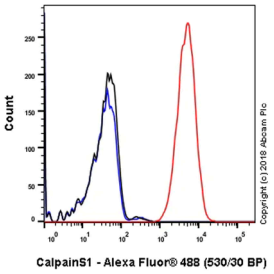
Immunohistochemical analysis of Calpain expression in formalin-fixed, paraffin-embedded Human breast carcinoma using ab101683 at 1/100 dilution.



Flow Cytometry (Intracellular) - Anti-Calpain small subunit 1 antibody [SP81] (ab101683)

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

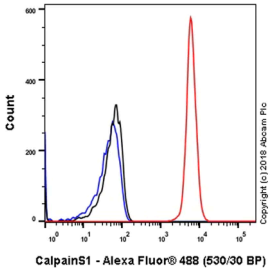
Flow cytometry analysis of Hela (human cervix adenocarcinoma) labeling Calpain small subunit 1 with purified ab101683 at 1/20 dilution (4.5 µg/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as a secondary antibody. Isotype control - Rabbit monoclonal IgG (ab172730) (Black). Unlableled control - Unlabelled cells (blue).



Flow Cytometry (Intracellular) - Anti-Calpain small subunit 1 antibody [SP81] (ab101683)

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

Flow cytometry analysis of PC-12 (rat adrenal gland pheochromocytoma) labeling Calpain small subunit 1 with purified ab101683 at 1/20 dilution (4.5 µg/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as a secondary antibody. Isotype control - Rabbit monoclonal IgG (ab172730) (Black). Unlableled control - Unlabelled cells (blue).



Flow Cytometry (Intracellular) - Anti-Calpain small subunit 1 antibody [SP81] (ab101683)

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

Flow cytometry analysis of NIH/3T3 (mouse embryo) labeling Calpain small subunit 1 with purified ab101683 at 1/20 dilution (4.5 µg/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as a secondary antibody. Isotype control - Rabbit monoclonal IgG (ab172730) (Black). Unlableled control - Unlabelled cells (blue).

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