abcam

ab101684

Anti-Calpastatin antibody [SP82]

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	SP82
Purification technique	Affinity purification Protein A/G
Purification notes	Purified from TCS by protein A/G.

Reactivity data

Flow Cyt (Intra)

Tested

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

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	Incubate for 30 minutes at RT. Antigen retrieval is recommended: boil tissue section in 10mM citrate buffer, pH 6.0 for 10 min followed by cooling at RT for 20 min.

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information Calpastatin

Function	Specific inhibition of calpain (calcium-dependent cysteine protease). Plays a key role in postmortem tenderization of meat and have been proposed to be involved in muscle protein degradation in living tissue.

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

Supplementary info

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

Activity summary	Calpastatin is an endogenous inhibitor of calpain proteases with popular alternate names including CAST. The mass of calpastatin is approximately 70 kDa. It is

	expressed in various tissues throughout the body such as the brain heart and muscle. Calpastatin regulates the activity of the calpain family of cysteine proteases by binding to their catalytic domains. By modulating calpain activity calpastatin plays a role in several cellular processes including cytoskeletal remodeling and signal transduction.
Biological function summary	Calpastatin regulates intracellular protein degradation by inhibiting calpain activity. This inhibition prevents uncontrolled proteolysis of specific substrate proteins. Calpastatin is not part of a larger protein complex but interacts independently with multiple isoforms of calpain. It helps maintain cellular homeostasis by influencing autophagy apoptosis and cell migration integrating signals that drive various physiological processes.
Pathways	Calpain activity modulation through calpastatin takes place in several key biological pathways including apoptosis and the Wnt signaling pathway. Calpain-mediated cleavage affects cell survival and death by modifying Bcl-2 family proteins. In the Wnt signaling pathway calpastatin regulates calpain which influences β-catenin degradation therefore affecting cell proliferation and differentiation pathways. These interactions highlight calpastatin’s central role in managing fundamental cellular events.
Associated diseases and disorders	Uncontrolled calpain activity due to insufficient calpastatin levels relates to neurodegenerative diseases such as Alzheimer's disease and muscular dystrophies. In Alzheimer's disease reduced calpastatin levels may lead to excessive calpain activity resulting in tau protein hyperphosphorylation and neurofibrillary tangles. Calpastatin-related calpain dysregulation also contributes to muscle cell degeneration seen in muscular dystrophies by affecting structural proteins like dystrophin. These connections highlight the critical balance that calpastatin maintains in cellular processes pertinent to human health.

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

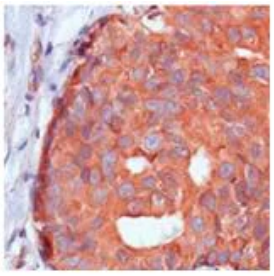
We do not recommend this combination. It is not covered by our product promise.

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.

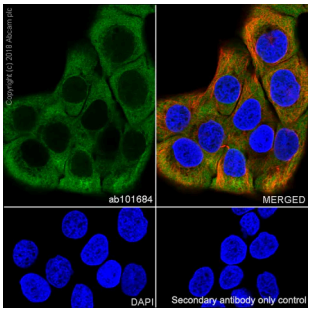
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calpastatin antibody [SP82] (ab101684)

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

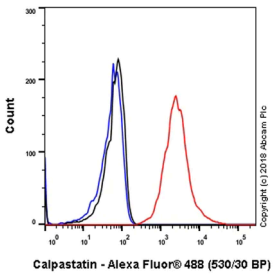
Immunohistochemical analysis of Calpastatin in formalin-fixed, paraffin-embedded Human breast carcinoma using ab101684 at 1/200 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-Calpastatin antibody [SP82] (ab101684)

Calpastatin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Calpastatin antibody

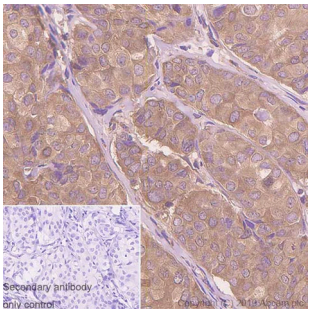
Immunocytochemistry/ Immunofluorescence analysis of HaCaT (human skin keratinocyte) cells labeling Calpastatin with purified ab101684. Cells were fixed in 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody. DAPI was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Flow Cytometry (Intracellular) - Anti-Calpastatin antibody [SP82] (ab101684)

Calpastatin Flow Cytometry (Intracellular) staining using rabbit Anti-Calpastatin antibody

Flow cytometry analysis of HaCaT (human skin keratinocyte) labeling Calpastatin with purified ab101684 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as a secondary antibody. Isotype control - Rabbit monoclonal IgG (ab172730) (black). Unlableled control - Unlabelled cells (blue).

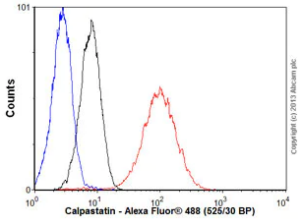


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calpastatin antibody [SP82] (ab101684)

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human breast carcinoma tissue sections labeling Calpastatin with Purified ab101684 at 1/100 dilution

(0.59 µg/ml). Heat mediated antigen retrieval was performed Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Flow Cytometry (Intracellular) - Anti-Calpastatin antibody [SP82] (ab101684)

Calpastatin Flow Cytometry (Intracellular) staining using rabbit Anti-Calpastatin antibody

Overlay histogram showing HeLa cells stained with ab101684 (red line). The cells were fixed with 80% 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 (ab101684) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.

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