abcam

ab227811

Anti-Cathepsin B antibody [EPR21033] - BSA and Azide free

Recombinant | RabMAb

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	EPR21033
Purification technique	Affinity purification Protein A
Concentration	1.027 - 1.058 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Expected

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

Notes	-

ICC/IF

Tested

Species	Rat
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Rat
Dilution info	-
Notes	-

Expected

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

Target data

See full target information CATB_MOUSE

Function	Thiol protease which is believed to participate in intracellular degradation and turnover of proteins (By similarity). Cleaves matrix extracellular phosphoglycoprotein MEPE (By similarity). Involved in the solubilization of cross-linked TG/thyroglobulin in the thyroid follicle lumen (PubMed:12782676). Has also been implicated in tumor invasion and metastasis (By similarity).

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

ab227811 is the carrier-free version of ab214428.

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	Cathepsin B also known as CTSB or cathepsin beta is a lysosomal cysteine protease belonging to the papain family. This enzyme possesses a molecular weight of approximately 25 to 30 kDa. You can find cathepsin B expressed in various tissues with high levels observed in the liver kidney and spleen. It plays a mechanical role in protein degradation within lysosomes operating optimally in acidic environments. The enzyme has active and inactive forms depending on structural modifications and environmental conditions.
Biological function summary	Cathepsin B participates as a proteolytic enzyme involved in protein turnover and processing. It does not function in isolation but often associates with various other proteases forming complexes essential for efficient substrate breakdown. Cathepsin B assists in the activation of other enzymes by cleaving propeptides therefore facilitating the initiation of cascade reactions. This role is critical in maintaining cellular homeostasis and modulating physiological processes including cell migration and immune response modulation.
Pathways	Cathepsin B significantly contributes to the lysosomal protein degradation pathway and the autophagy-lysosome pathway. It interacts with proteins such as B protein which are important for cellular recycling and energy homeostasis. Its activity supports the MHC class II antigen processing pathway playing an essential part in immune system functionality. Cathepsin B also exhibits interactions with Ctsb protein inhibitors which regulate its proteolytic activity within these pathways.
Associated diseases and disorders	Cathepsin B has strong associations with cancer progression and neurological disorders such as Alzheimer's disease. Its overexpression and dysregulation are linked to tumor metastasis where it degrades extracellular matrix components promoting invasion. Ctsb protein interactions with corey mazo proteins influence tumor microenvironment and immune evasion. In Alzheimer's disease cathepsin B can influence amyloid beta peptide processing connected to neurodegenerative pathology progression. These roles highlight the potential for cathepsin B as a therapeutic target in addressing these conditions.

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.

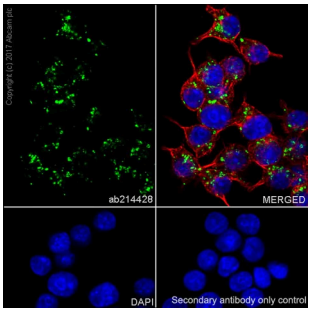
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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5 product images



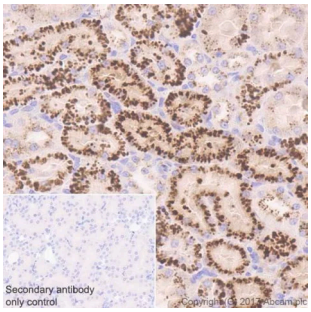
Immunocytochemistry/ Immunofluorescence - Anti-Cathepsin B antibody [EPR21033] - BSA and Azide free (ab227811)

Cathepsin B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cathepsin B antibody

Immunofluorescent analysis of 100% methanol-fixed RAW 264.7 (mouse macrophage cell line transformed with Abelson murine leukemia virus) cells labeling Cathepsin B with ab214428 at 1/250 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining in RAW 264.7 cells.
The nuclear counterstain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab214428).



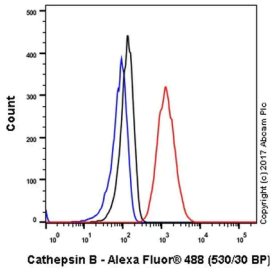
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin B antibody [EPR21033] - BSA and Azide free (ab227811)

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

Immunohistochemical analysis of paraffin-embedded rat kidney tissue labeling Cathepsin B with ab214428 at 1/1000 dilution, followed by secondary Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Punctate cytoplasmic staining on rat kidney (PMID: 20668705; PMID: 26831567) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab214428).

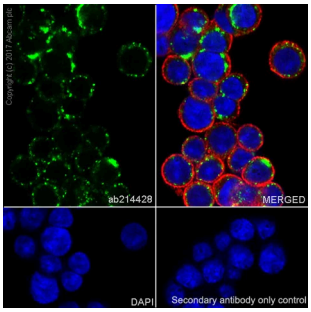
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Cathepsin B antibody [EPR21033] - BSA and Azide free (ab227811)

Cathepsin B Flow Cytometry (Intracellular) staining using rabbit Anti-Cathepsin B antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized RAW 264.7 (mouse macrophage cell line transformed with Abelson murine leukemia virus) cell line labeling Cathepsin B with ab214428 at 1/500 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077), at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab214428).



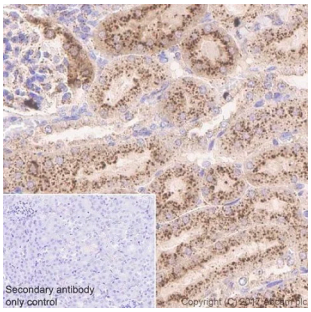
Immunocytochemistry/ Immunofluorescence - Anti-Cathepsin B antibody [EPR21033] - BSA and Azide free (ab227811)

Cathepsin B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cathepsin B antibody

Immunofluorescent analysis of 100% methanol-fixed PC-12 (rat adrenal gland pheochromocytoma cell line) cells labeling Cathepsin B with ab214428 at 1/250 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on PC-12 cells.
The nuclear counterstain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab214428).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin B antibody [EPR21033] - BSA and Azide free (ab227811)

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

Immunohistochemical analysis of paraffin-embedded mouse kidney tissue labeling Cathepsin B with ab214428 at 1/1000 dilution, followed by secondary Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Punctate cytoplasmic staining on mouse kidney (PMID: 20668705; PMID: 26831567) is observed. Counter stained with hematoxylin.
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This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab214428).

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

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