abcam

ab75852

Anti-Cathepsin D antibody [EPR3057Y]

Anti-Cathepsin D antibody [EPR3057Y] (ab75852) is a rabbit monoclonal antibody detecting Cathepsin D in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, IHC-Fr, ICC/IF**. Suitable for **Human, Mouse**.

- Clone EPR3057Y is the most cited clone to Cathepsin D
- Biophysical QC for unrivalled batch-batch consistency
- Over 120 publications
- Trusted since 2009

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	EPR3057Y
Purification technique	Affinity purification Protein A
Concentration	0.167 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/100 - 1/1000
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Expected

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

IP

Tested

Species	Human
Dilution info	1/10 - 1/20
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/2000 - 1/10000
Notes	-

Species	Human
Dilution info	1/2000 - 1/10000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100 - 1/1000
Notes	-

Expected

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

IHC-Fr

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information CTSD

Function	Acid protease active in intracellular protein breakdown. Plays a role in APP processing following cleavage and activation by ADAM30 which leads to APP degradation (PubMed:27333034). Involved in the pathogenesis of several diseases such as breast cancer and possibly Alzheimer disease.

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	Stable for 12 months at -20°C

Notes

Anti-Cathepsin D antibody [EPR3057Y] (ab75852) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Flow Cyt (Intra), ICC/IF, IHC-Fr, IHC-P, IP, WB in human, mouse samples.

Anti-Cathepsin D antibody [EPR3057Y] (ab75852) has been cited over 127 times in peer reviewed journals and is trusted by the scientific community.

Abcam's high quality manufacturing and validation processes ensure Anti-Cathepsin D antibody [EPR3057Y] (ab75852) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.

Anti-Cathepsin D antibody [EPR3057Y] (ab75852) has 11 independent reviews from customers.

Anti-Cathepsin D antibody [EPR3057Y] (ab75852) specifically detects Cathepsin D (UniProt ID: P07339; Molecular weight: 38kDa) and is sold in 100 µL and 1 mL selling sizes.

Conjugation-ready, carrier free format available for antibody clone EPR3057Y - ab207549.

Antibody clone EPR3057Y is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 488, Alexa Fluor® 647, Alexa Fluor® 594, Alexa Fluor® 405, PE, APC, HRP, Alkaline Phosphatase (ab197605, ab198326, ab207874, ab207875, ab305650, ab305651, ab305652, ab308915).

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.

Species reactivity
Rat: We have preliminary internal testing data to indicate this antibody may not react with this species.
Please contact us for more information.

Supplementary info

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

Activity summary	Cathepsin D also known as CTSD is a protein with a mass of approximately 45 kDa. It functions as an aspartyl protease and is expressed in lysosomes across various tissues including the liver and kidneys. This enzyme acts by cleaving peptide bonds within proteins which is essential for protein degradation and turnover. Cathepsin D exists as precursor forms that become activated in the acidic environment of the lysosome. It plays a critical role in normal cellular processes by maintaining protein homeostasis.
Biological function summary	The enzymatic activity of Cathepsin D is important for cellular maintenance and apoptosis. This protease does not act within larger protein complexes but contributes to the degradation of extracellular and intracellular proteins. It mediates processes like antigen processing where it deconstructs proteins into peptides that are presented on major histocompatibility complex (MHC) molecules. ELISA tests can quantify its expression levels sometimes termed as CTSD activity in various biological samples offering insights into its role within cellular environments.
Pathways	Cathepsin D involvement includes the lysosomal degradation pathway and the apoptotic signaling pathway. In the lysosomal degradation pathway Cathepsin D breaks down proteins and peptides a process important for cellular recycling and energy release. It interacts with other lysosomal enzymes such as Cathepsin B in

	this pathway ensuring comprehensive breakdown of cellular waste. The apoptotic signaling pathway involves the regulation of programmed cell death where Cathepsin D can influence the activation of downstream proteins like Bcl-2 and Bax which control cell survival.
Associated diseases and disorders	The overexpression of Cathepsin D links to breast cancer and Alzheimer's disease. In breast cancer increased Cathepsin D expression correlates with tumor progression and metastasis influencing tumor behavior through interactions with other proteins involved in cell proliferation. Alzheimer's disease features the involvement of Cathepsin D in the breakdown of amyloid precursor protein which relates to amyloid beta plaque accumulation. The abnormal activity of Cathepsin D in these disorders makes it a potential target for therapeutic antibodies such as CTSD antibodies which aim to regulate its 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

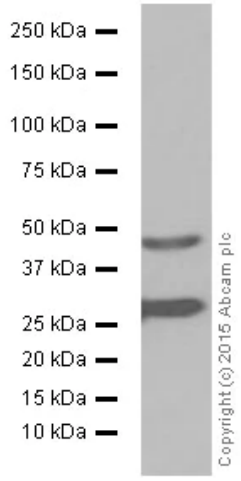
We do not recommend this combination. It is not covered by our product promise.

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.

11 product images



Western blot - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

Cathepsin D Western blot staining of Mouse brain tissue lysate using rabbit Anti-Cathepsin D antibody

Blocking/Dilution buffer: 5% NFDM /TBST.
All lanes:
Western blot - Anti-Cathepsin D antibody [EPR3057Y] (ab75852) at 1/5000 dilution

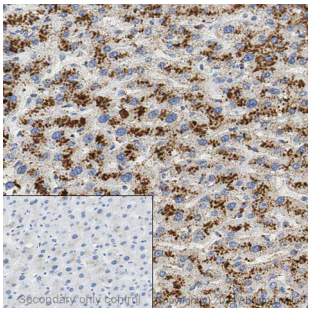
All lanes:
Mouse brain tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/10000 dilution

Predicted band size: 44 kDa

Observed band size: 28 kDa, 43 kDa

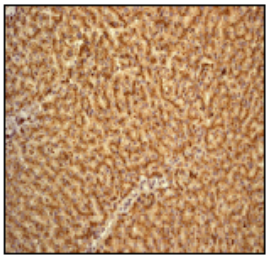


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

Immunohistochemical analysis of formalin fixed paraffin embedded human liver labelling Cathepsin D with ab75852 at a concentration of 0.01µg/ml. The immunostaining was performed on a Ventana DISCOVERY ULTRA (Roche Tissue Diagnostics) instrument with a OptiView DAB IHC Detection Kit. Heat mediated antigen retrieval was performed with DISCOVERY cell conditioning solution (CC1) 100°C, pH8.5 for 32mins.

ab75852 Anti-Cathepsin D antibody [EPR3057Y] was incubated for 16mins at 37°C. Sections were counterstained with Hematoxylin II. Image inset shows absence of staining in secondary antibody only control.

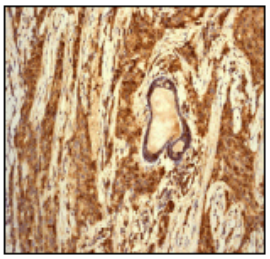
Customers are encouraged to optimise antigen retrieval conditions, antibody concentration, incubation times and temperature for best results in their own IHC assay workflow (automated and manual).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

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

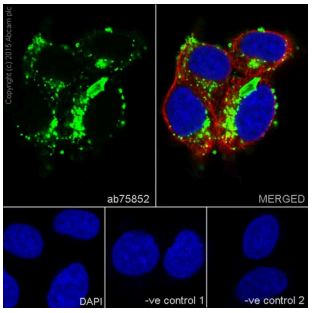
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human liver tissue labeling Cathepsin D with unpurified ab75852 at a dilution of 1/500.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue labeling Cathepsin D with unpurified ab75852 at a dilution of 1/500. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



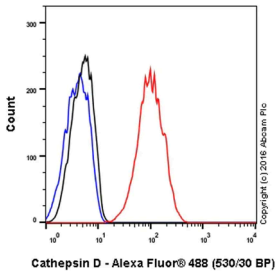
Immunocytochemistry/ Immunofluorescence - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

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

Immunocytochemistry/Immunofluorescence analysis of MCF7 (Human breast adenocarcinoma cell line) cells labeling Cathepsin D with purified ab75852 at 1/100.
Cells were fixed with 100% methanol and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. DAPI (blue) was used as the nuclear counterstain. ab7291, a mouse anti-tubulin (1/1000) and ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000) were also used.

Control 1: primary antibody (1/100) and secondary antibody, ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000).

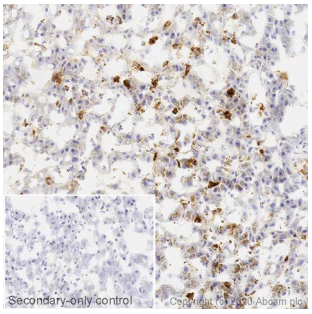
Control 2: ab7291 (1/1000) and secondary antibody, ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000).



Flow Cytometry (Intracellular) - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

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

Intracellular Flow Cytometry analysis of HepG2 (Human liver hepatocellular carcinoma cell line)cells labeling Cathepsin D with purified ab75852 at 1/20 dilution (10µg/ml) (red).
Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A Goat anti rabbit IgG (Alexa Fluorr® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.

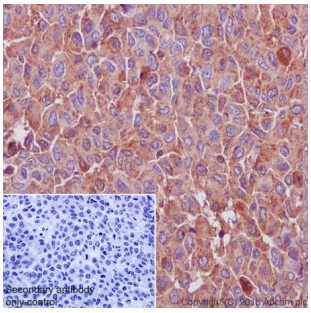


Immunohistochemistry (Frozen sections) - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

Cathepsin D Immunohistochemistry (Frozen sections) staining using rabbit Anti-Cathepsin D antibody

IHC image of Cathepsin D staining in a section of frozen normal human liver performed on a Leica BOND™ system using the standard protocol. The section was fixed in 10% paraformaldehyde (10 min) prior to staining. The section was incubated with ab75852, 1/1000 dilution, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with

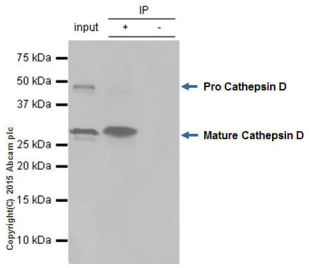
DPX. The inset secondary-only control image is taken from an identical assay without primary antibody.
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue labeling Cathepsin D with purified ab75852 at a dilution of 1/100. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. ab97051, an HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/500).

Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.



Immunoprecipitation - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

ab75852 (purified) at 1/20 immunoprecipitating Cathepsin D in SK-BR-3 (Human mammary gland adenocarcinoma cell line) whole cell lysate.
Lane 1 (input): SK-BR-3 whole cell lysate (10µg)

Lane 2 (+): ab75852 + SK-BR-3 whole cell lysate (10µg).

Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab75852 in SK-BR-3 whole cell lysate.

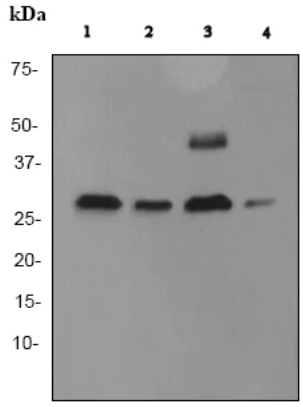
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10,000 dilution.

Blocking/Dilution buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

Predicted band size: 44 kDa

Observed band size: 28 kDa, 43 kDa, 46 kDa



Western blot - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

Bands at 28kDa are the Cathepsin D heavy chain.
All lanes:
Western blot - Anti-Cathepsin D antibody [EPR3057Y] (ab75852) at 1/10000 dilution

Lane 1:
MCF7 (Human breast adenocarcinoma cell line) cell lysate at 10 µg

Lane 2:
A431 (Human epidermoid carcinoma cell line) cell lysate at 10 µg

Lane 3:
SK-BR-3 (Human mammary gland adenocarcinoma cell line) cell lysate at 10 µg

Lane 4:

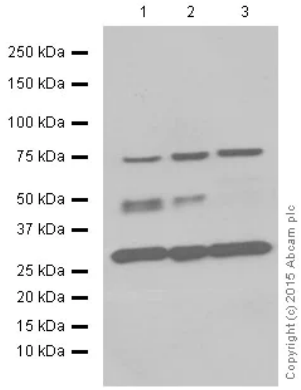
HepG2 (Human liver hepatocellular carcinoma cell line) cell lysate at 10 µg

Secondary

All lanes:
HRP-conjugated goat anti-rabbit IgG at 1/2000 dilution

Predicted band size: 44 kDa

Observed band size: 28 kDa, 46 kDa



Western blot - Anti-Cathepsin D antibody [EPR3057Y] (ab75852)

Blocking/Dilution buffer: 5% NFDM /TBST.
This antibody detects 28kDa Cathepsin D heavy chain, 43kDa intermediate form and 46kDa pro-Cathepsin D form. We are unsure of the identity of the band around 75kDa.

All lanes:
Western blot - Anti-Cathepsin D antibody [EPR3057Y] (ab75852) at 1/5000 dilution

Lane 1:
MCF7 (Human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Lane 2:
SK-BR-3 (Human mammary gland adenocarcinoma cell line) whole cell lysate at 20 µg

Lane 3:
HepG2 (Human liver hepatocellular carcinoma cell line) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/10000 dilution

Predicted band size: 44 kDa

Observed band size: 28 kDa, 43 kDa, 46 kDa

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