abcam

ab302649

Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric)

Recombinant | 20ul selling size

Key facts

Isotype	IgG2a
Host species	Mouse
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-MsIgG2a
Purification technique	Affinity purification Protein A
Concentration	0.944 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/10000
Notes	-

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Species	Mouse
Dilution info	1/50
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Expected

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

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
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	Blue Ice
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	Avoid freeze / thaw cycle

Notes

This mouse monoclonal chimeric antibody has been engineered from a RabMAb parent antibody (ab75852). By necessity, some rabbit sequence is retained as part of the variable domain. When multiplexing with other rabbit-derived antibodies, using cross absorbed FC-reactive secondary antibodies are recommended.
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	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

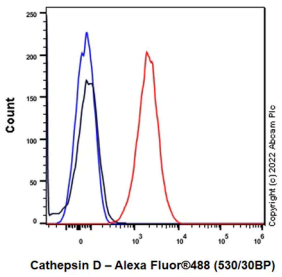
We do not recommend this combination. It is not covered by our product promise.

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.

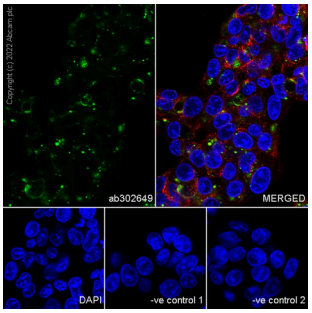
8 product images



Flow Cytometry (Intracellular) - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

Flow Cytometry (Intracellular) staining of HepG2 (human hepatocellular carcinoma epithelial cell) cells using mouse Anti- antibody

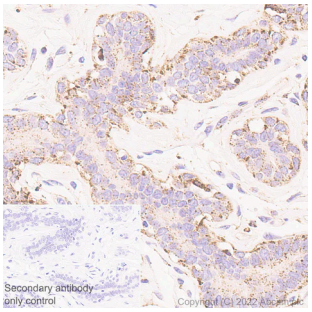
Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HepG2 (human hepatocellular carcinoma epithelial cell) cells labelling CTSD (cathepsin D) with ab302649 at 1/1000 dilution (0.1ug) (Red) compared with a Mouse monoclonal IgG (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti-Mouse IgG (Alexa Fluor® 488, ab150113) at 1/2000 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

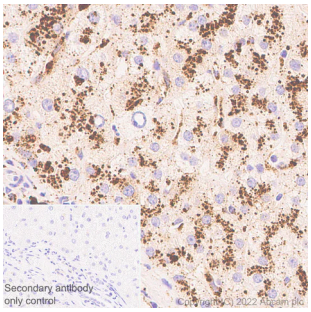
Immunocytochemistry/ Immunofluorescence staining of HepG2 (human hepatocellular carcinoma epithelial cell) using mouse Anti- antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized HepG2 (human hepatocellular carcinoma epithelial cell) cells labelling CTSD (cathepsin D) with ab302649 at 1/50 (18.84 ug/ml) dilution, followed by ab98736 Goat F(ab')2 Anti-Mouse IgG - Fc (DyLight® 488) pre-adsorbed antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic staining in HepG2 cell line is observed. ab179513 Anti-beta Tubulin rabbit monoclonal antibody was used to counterstain tubulin at 1/200 10ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab98736 Goat F(ab')2 Anti-Mouse IgG - Fc (DyLight® 488) pre-adsorbed at 1/1000 2 ug/ml dilution.



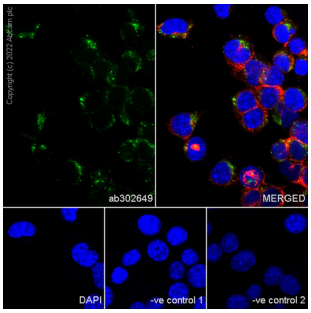
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

Immunohistochemical analysis of paraffin-embedded Human breast tissue labeling CTSD (cathepsin D) with ab302649 at 1/10000 (0.094 ug/ml) followed by a ready to use LeicaDS9800 (Bond☒ Polymer Refine Detection). Cytoplasmic with granular staining on human breast. The section was incubated with ab302649 for 30 mins at room temperature, followed by anti-mouse IgG2a antibody for 8 mins during the LeicaDS9800 kit staining procedure.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond☒ Polymer Refine Detection).Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

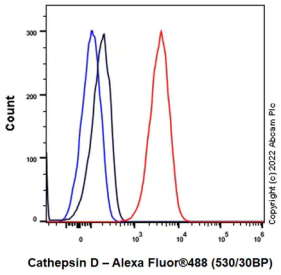
Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling CTSD (cathepsin D) with ab302649 at 1/10000 (0.094 ug/ml) followed by a ready to use LeicaDS9800 (Bond☒ Polymer Refine Detection). Cytoplasmic with granular staining on human liver. The section was incubated with ab302649 for 30 mins at room temperature, followed by anti-mouse IgG2a antibody for 8 mins during the LeicaDS9800 kit staining procedure.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond☒ Polymer Refine Detection).Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



Immunocytochemistry/ Immunofluorescence - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

Immunocytochemistry/ Immunofluorescence staining of Neuro-2a (mouse neuroblastoma neuroblast) using mouse Anti- antibody

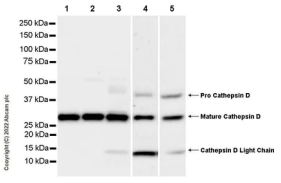
Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized Neuro-2a (mouse neuroblastoma neuroblast) cells labelling CTSD (cathepsin D) with ab302649 at 1/50 (18.84 ug/ml) dilution, followed by ab98736 Goat F(ab')2 Anti-Mouse IgG - Fc (DyLight® 488) pre-adsorbed antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing cytoplasmic staining in Neuro-2a cell line is observed. ab179513 Anti-beta Tubulin rabbit monoclonal antibody was used to counterstain tubulin at 1/200 10ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab98736 Goat F(ab')2 Anti-Mouse IgG - Fc (DyLight® 488) pre-adsorbed at 1/1000 2 ug/ml dilution.



Flow Cytometry (Intracellular) - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

Flow Cytometry (Intracellular) staining of Neuro-2a (mouse neuroblastoma neuroblast) cells using mouse Anti- antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Neuro-2a (mouse neuroblastoma neuroblast) cells labelling CTSD (cathepsin D) with ab302649 at 1/1000 dilution (0.1ug) (Red) compared with a Mouse monoclonal IgG (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti-Mouse IgG (Alexa Fluor® 488, ab150113) at 1/2000 dilution was used as the secondary antibody.



Western blot - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

Blocking and diluting buffer and concentration: 5% NFDM/TBST Exposure time: Lane 1-3: 15 seconds Lane 4, 5: 125 seconds
All lanes:
Western blot - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649) at 1/1000 dilution

Lane 1:
Human heart tissue lysate at 20 µg

Lane 2:
Human liver tissue lysate at 20 µg

Lane 3:
Human spleen tissue lysate at 20 µg

Lane 4:
Mouse brain tissue lysate at 20 µg

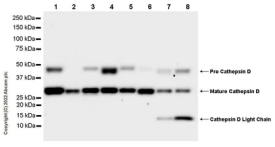
Lane 5:
Rat stomach tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG Fc (HRP) preadsorbed (ab98717) at 1/20000 dilution

Observed band size: 14 kDa, 28 kDa, 46 kDa

Exposure time: 15s



Western blot - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649)

Blocking and diluting buffer and concentration: 5% NFDM/TBST Exposure time: 26 seconds
All lanes:
Western blot - Anti-Cathepsin D [EPR3057Y] - Mouse IgG2a (Chimeric) (ab302649) at 1/1000 dilution

Lane 1:
MCF7 (human breast adenocarcinoma epithelial cell), whole cell lysate at 20 µg

Lane 2:
SH-SY5Y (human neuroblastoma epithelial cell), whole cell lysate at 20 µg

Lane 3:
SK-BR-3 (human breast adenocarcinoma epithelial cell), whole cell lysate at 20 µg

Lane 4:
U937 (human histiocytic lymphoma monocyte), whole cell lysate at 20 µg

Lane 5:
A431 (human epidermoid carcinoma epithelial cell), whole cell lysate at 20 µg

Lane 6:
HepG2 (human hepatocellular carcinoma epithelial cell), whole cell lysate at 20 µg

Lane 7:
RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage), whole cell lysate at 20 µg

Lane 8:
Neuro-2a (mouse neuroblastoma neuroblast), whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG Fc (HRP) preadsorbed (ab98717) at 1/20000 dilution

Observed band size: 28 kDa, 14 kDa, 46 kDa

Exposure time: 26s

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