abcam

ab209211

Anti-Catalase antibody [EPR20198] - Peroxisome Marker

Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) is a rabbit monoclonal antibody detecting Catalase in **Western Blot, Flow Cytometry (Intra), ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 20 publications

Lab Essentials | Recombinant | RabMAb | KO Validated | 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	EPR20198
Purification technique	Affinity purification Protein A
Concentration	0.6 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/2000
Notes	-

Species	Rat
Dilution info	1/2000
Notes	-

Species	Human
Dilution info	1/2000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/60
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information Catalase

Function	Catalyzes the degradation of hydrogen peroxide (H(2)O(2)) generated by peroxisomal oxidases to water and oxygen, thereby protecting cells from the toxic effects of hydrogen peroxide (PubMed:7882369). Promotes growth of cells including T-cells, B-cells, myeloid leukemia cells, melanoma cells, mastocytoma cells and normal and transformed fibroblast cells (PubMed:7882369).

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	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of Catalase?
Anti-Catalase [EPR20198] - Peroxisome Marker (ab209211) specifically detects a band for Catalase (UniProt: P24270) at a molecular weight of 60kDa.

Trusted by the scientific community
Anti-Catalase [EPR20198] - Peroxisome Marker (ab209211) was first used in a scientific publication in 2016 and has been cited over 20 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) has been confirmed by Western blot testing in Catalase Knockout HAP1 cells.

Other related products
We have a range of other formats of antibody clone [EPR20198] also available for your convenience: ab209211, Carrier free - ab223793

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Catalase also known as CAT is an enzyme that catalyzes the decomposition of hydrogen peroxide into water and oxygen. This enzyme has a molecular weight of approximately 240 kDa and typically forms a tetramer. Catalase mainly resides in peroxisomes functioning as a peroxisome marker. It expresses abundantly in the liver kidneys and erythrocytes where it plays significant roles in cellular protection against oxidative damage. The presence of Catalase makes it an ideal candidate for use in peroxisome staining and peroxisome image analysis in research.
Biological function summary	Catalase contributes to antioxidant defense by breaking down hydrogen peroxide preventing cellular damage. In peroxisomes it works alongside other peroxisomal enzymes to maintain cell health and metabolic regulation. Catalase does not form a complex but interacts closely with other enzymes like superoxide dismutase which dismutates superoxide radicals into less harmful substances. Increased Catalase activity levels can be measured using Catalase activity kits and activity assays allowing us to learn about peroxisome function.
Pathways	Hydrogen peroxide removal by Catalase is vital in the reactive oxygen species (ROS) metabolic process and plays a part in the cellular response to oxidative stress. Catalase interacts with the glutathione peroxidase pathway safeguarding cells from oxidative stress-related damage. Superoxide dismutase works synergistically with Catalase transforming superoxide anions into hydrogen

peroxide before its decomposition by Catalase. These activities highlight the essential role Catalase plays in protecting cells from oxidative stress damage.

Associated diseases and disorders

Catalase relates to conditions like acatalasemia and diabetes. Acatalasemia a condition caused by a deficiency of Catalase increases the risk of developing diabetes and other oxidative stress-related diseases. Mutations in the CAT gene can lead to decreased Catalase activity contributing to the onset of these conditions. Additionally Catalase works with other proteins like glutathione peroxidase in mitigating the effects of oxidative stress with deficiencies potentially exacerbating complications in diabetes management.

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

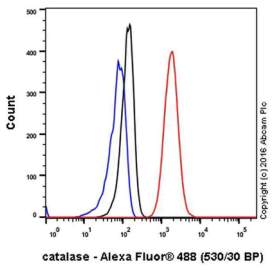
We do not recommend this combination. It is not covered by our product promise.

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

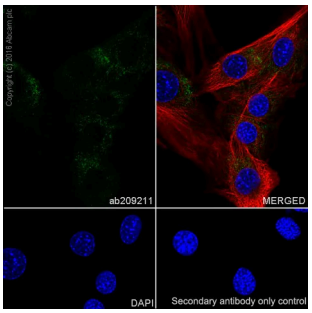


Flow Cytometry (Intracellular) - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

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

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed C2C12 (Mouse myoblast cell line) cells labeling Catalase with ab209211 at 1/60 dilution (red) compared withRabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730; black) and an unlabelled control (cells without

incubation with primary antibody and secondary antibody; blue). Goat Anti-Rabbit IgG (Alexa Fluor® 488) at 1/2000 dilution was used as the secondary antibody.

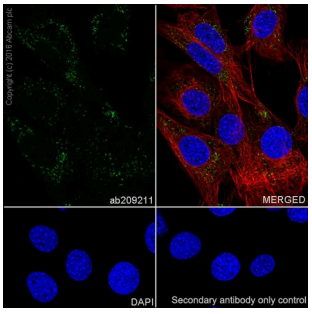


Immunocytochemistry/ Immunofluorescence - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Catalase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Catalase antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized C2C12 (Mouse myoblast cell line) cells labeling Catalase with ab209211 at 1/100 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 C2C12 cell line. 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, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.

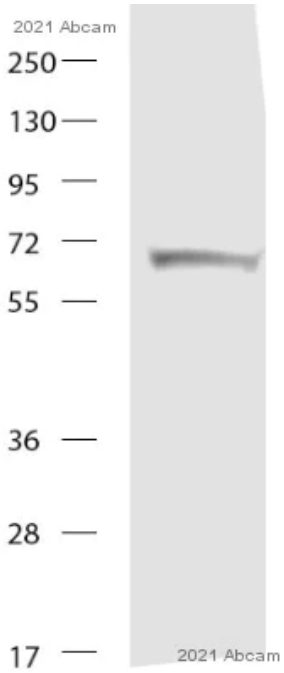


Immunocytochemistry/ Immunofluorescence - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Catalase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Catalase antibody

ImmunoFluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (Mouse embryonic fibroblast cell line) cells labeling Catalase with ab209211 at 1/100 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 NIH/3T3 cell line. 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, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.



This image is courtesy of an anonymous customer review

Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Catalase Western blot staining of SHSY5Y cell lysate using rabbit Anti-Catalase antibody

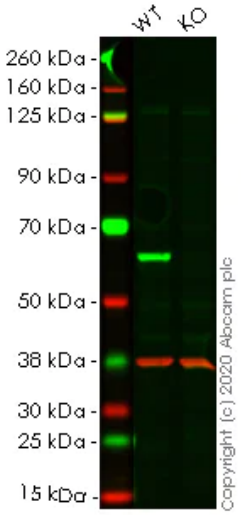
4-20% tris-glycin gel
All lanes:
Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) at 1/2000 dilution

All lanes:
SHSY5Y cell lysate at 40 µg

Secondary

All lanes:
Anti-rabbit IgG, HRP-linked Antibody #7074 at 1/10000 dilution

Exposure time: 12min



Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Catalase Western blot staining using rabbit Anti-Catalase antibody

Lanes 1-2: Merged signal (red and green). Green - ab209211 observed at 60 kDa. Red - loading control ab8245 observed at 37 kDa.
ab209211 Anti-Catalase antibody [EPR20198] - Peroxisome Marker was shown to specifically react with Catalase in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab265250 (knockout cell lysate ab256859) was used. Wild-type and Catalase knockout samples were subjected to SDS-PAGE. ab209211 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 2000 and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) at 1/2000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

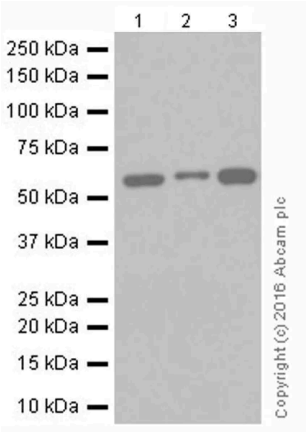
Lane 2:
CAT knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human CAT (Catalase) knockout HeLa cell line (ab265250)

Performed under reducing conditions.

Predicted band size: 60 kDa

Observed band size: 60 kDa



Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) at 1/2000 dilution

Lane 1:
Human fetal brain lysate at 10 µg

Lane 2:
Human fetal heart lysate at 10 µg

Lane 3:
Human fetal kidney lysate at 10 µg

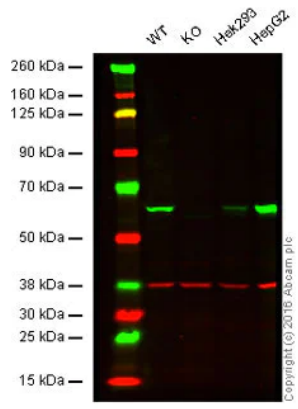
Secondary

All lanes:
Goat Anti-Rabbit IgG Peroxidase Conjugate, specific to the non-reduced form of IgG at 1/10000 dilution

Predicted band size: 60 kDa

Observed band size: 60 kDa

Exposure time: 1min



Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Lanes 1 - 4: Merged signal (red and green). Green - ab209211 observed at 60 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab209211 was shown to specifically react with CAT in wild-type HAP1 cells. No band was observed when CAT knockout samples were examined. Wild-type and CAT knockout samples were subjected to SDS-PAGE. ab209211 and ab8245 (Mouse anti GAPDH loading control) were incubated overnight at 4°C at 1/2000 dilution and 1/10,000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) ab216776 secondary antibodies at 1/10,000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) at 1/2000 dilution

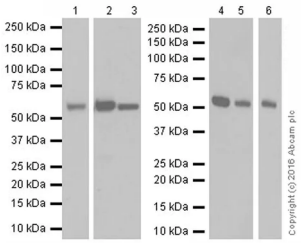
Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
CAT knockout HAP1 whole cell lysate at 20 µg

Lane 3:
Hek293 whole cell lysate at 20 µg

Lane 4:
HepG2 whole cell lysate at 20 µg

Predicted band size: 60 kDa



Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: Lane 1: 1 second; Lane 2/3/6: 3 seconds; Lane 4/5: 30 seconds.

All lanes:
Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) at 1/2000 dilution

Lane 1:
C6 (Rat glial tumor cell line) whole cell lysate at 10 µg

Lane 2:
PC-12 (Rat adrenal gland pheochromocytoma cell line) whole cell lysate at 10 µg

Lane 3:
NIH/3T3 (Mouse embryonic fibroblast cell line) whole cell lysate at 10 µg

Lane 4:
HepG2 (Human liver hepatocellular carcinoma cell line) whole cell lysate at 10 µg

Lane 5:
HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 10 µg

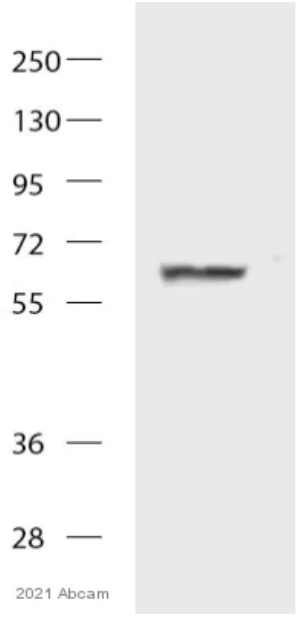
Lane 6:
C2C12 (Mouse myoblast cell line) whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 60 kDa

Observed band size: 60 kDa



Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Catalase Western blot staining of Balb/C mice brain tissue lysate using rabbit Anti-Catalase antibody

4-20% tris-glycin gel
All lanes:
Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) at 1/2000 dilution

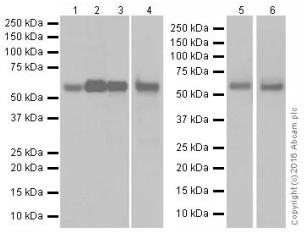
All lanes:
Balb/C mice brain tissue lysate at 40 µg

Secondary

All lanes:
Anti-rabbit IgG, HRP-linked Antibody #7074 at 1/10000 dilution

This image is courtesy of an anonymous customer review

Exposure time: 6min



Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: Lane 1-3: 5 seconds; Lane 4/5: 1 second; Lane 6: 3 seconds.

All lanes:
Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211) at 1/2000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Mouse heart lysate at 10 µg

Lane 3:
Mouse spleen lysate at 10 µg

Lane 4:
Mouse kidney lysate at 10 µg

Lane 5:
Rat heart lysate at 10 µg

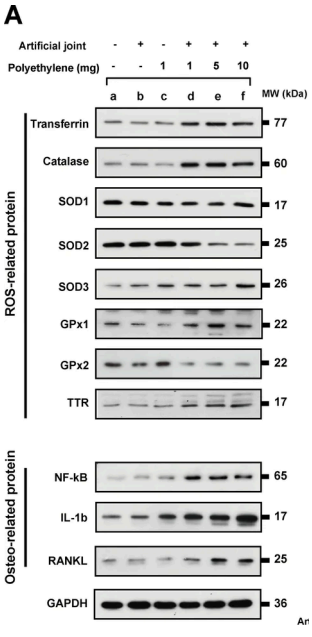
Lane 6:
Rat brain lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 60 kDa

Observed band size: 60 kDa



Western blot - Anti-Catalase antibody [EPR20198] - Peroxisome Marker (ab209211)

Catalase Western blot staining using rabbit Anti-Catalase antibody

Catalase western blot using anti-Catalase antibody [EPR20198] - Peroxisome Marker ab209211. Publication image and figure legend from Peng, K. T., Tsai, M. H., et al., 2018, PLoS One, PubMed 30125327.

ab209211 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab209211 please see the product overview.

Expression of various ROS-related proteins, pro-inflammatory factors, and an osteoclast differentiation factor RANKL in tissue samples of all treated groups at 24 weeks after surgery.(A) Representative Western blot analysis of transferrin, catalase, SOD1, SOD2, SOD3, GPx1, GPx2, TTR, NF-κB, IL-1β and RANKL in different groups. GAPDH was used as internal control. (B) Densitometric

Image collected and cropped by CiteAb under a CC-BY license from the publication

quantification of Western blot analysis for all tested proteins normalized to GAPDH (n = 3 for each group). *, $p < 0.05$, for results compared to those of the sham group; #, $p < 0.05$, for results compared to those of the group receiving an artificial knee joint only.

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