abcam

ab110292

Anti-Catalase antibody [12C2DB9] - Peroxisome Marker

Lab Essentials KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Clone number	12C2DB9
Purification technique	Precipitation Ammonium Sulphate
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purity near homogeneity as judge by SDS-PAGE. The antibody was produced in-vitro using hybridomas grown in serum-free medium and then purified by biochemical fractionation.

Reactivity data

ICC

Tested

Species	Human

Dilution info	5 µg/mL
Notes	-

Expected

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

IP

Tested

Species	Rat, Human, Cow
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Rat, Cow
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	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

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

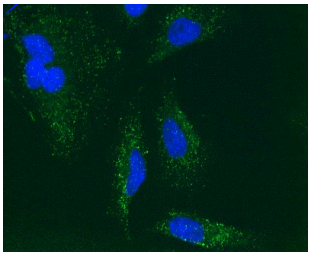
We do not recommend this combination. It is not covered by our product promise.

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.

4 product images

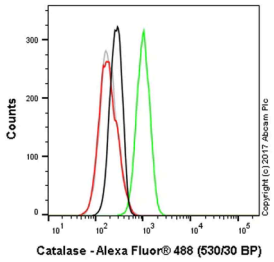


Immunocytochemistry - Anti-Catalase antibody [12C2DB9] - Peroxisome Marker (ab110292)

Catalase Immunocytochemistry staining using mouse Anti-Catalase antibody

Immunocytochemical staining of Human HeLa cells. The cells were paraformaldehyde fixed (4%, 20 minutes) and Triton X-100 permeabilized (0.1%, 15 minutes). The cells were incubated with the ab110292 (5 µg/ml) for 2 hours at room temperature or over night at 4°C. The secondary antibody, Alexa Fluor® 488 goat anti-mouse IgG (green), was used at a 1/1000 dilution for 1 hour. 10% Goat

serum was used as the blocking agent for all blocking steps. DAPI was used to stain the cell nuclei (blue). The target protein locates mainly in peroxisomes.



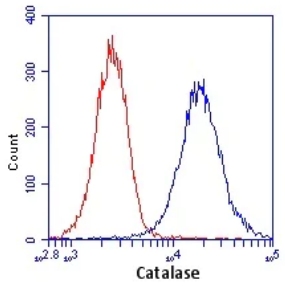
Flow Cytometry - Anti-Catalase antibody [12C2DB9] - Peroxisome Marker (ab110292)

Catalase Flow Cytometry staining using mouse Anti-Catalase antibody

Overlay histogram showing HAP1 wildtype (green line) and HAP1-CAT knockout cells (red line) stained with ab110292. The cells were fixed with 4% formaldehyde (10 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab110292, 1µg/ml) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-mouse IgG (H&L) presorbed (ab150117) at 1/2000 dilution for 30 min at 22°C.

A mouse IgG1 isotype control antibody (ab170190) was used at the same concentration and conditions as the primary antibody (HAP1 wildtype - black line, HAP1-CAT knockout - grey line). Unlabelled sample was also used as a control (this line is not shown for the purpose of simplicity).

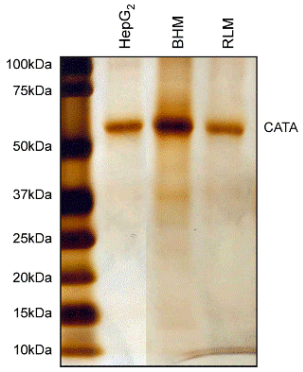
Acquisition of >5,000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter.



Flow Cytometry - Anti-Catalase antibody [12C2DB9] - Peroxisome Marker (ab110292)

Catalase Flow Cytometry staining using mouse Anti-Catalase antibody

Flow cytometric analysis of HL-60 cells using ab110292 at 1 µg/mL, (blue) or an isotype control (red).



Immunoprecipitation - Anti-Catalase antibody [12C2DB9] - Peroxisome Marker (ab110292)

Immunoprecipitation of Catalase using ab110292 from:
Lane 1: HepG2 cells
Lane 2: Cow heart sample
Lane 3: Rat liver sample

Predicted band size is 60 kDa.
All lanes:
Immunoprecipitation - Anti-Catalase antibody [12C2DB9] - Peroxisome Marker (ab110292)

Predicted band size: 60 kDa

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