abcam

ab221215

Anti-Heme Oxygenase 1 antibody [EPR1390Y] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR1390Y
Purification technique	Affinity purification Protein A
Concentration	1.039 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information HMOX1

Function	Heme oxygenase 1. Catalyzes the oxidative cleavage of heme at the alpha-methene bridge carbon, released as carbon monoxide (CO), to generate biliverdin IXalpha, while releasing the central heme iron chelate as ferrous iron (PubMed:11121422, PubMed:19556236, PubMed:7703255). Affords protection against programmed cell death and this cytoprotective effect relies on its ability to catabolize free heme and prevent it from sensitizing cells to undergo apoptosis (PubMed:20055707). Heme oxygenase 1. (Microbial infection) During SARS-COV-2 infection, promotes SARS-CoV-2 ORF3A-mediated autophagy but is unlikely to be required for ORF3A-mediated induction of reticulophagy. Heme oxygenase 1 soluble form. Catalyzes the oxidative cleavage of heme at the alpha-methene bridge carbon, released as carbon monoxide (CO), to generate biliverdin IXalpha, while releasing the central heme iron chelate as ferrous iron.

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

ab221215 is the carrier-free version of ab68477.

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.

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	Heme Oxygenase 1 also known as HO-1 or HMOX1 is an enzyme that plays an important mechanistic role in heme catabolism. It catalyzes the degradation of heme into biliverdin carbon monoxide and free iron. This process involves the cleavage of the heme ring. HO-1 has a molecular weight of approximately 32 kDa. It is widely expressed in numerous tissues but is especially abundant in the liver and spleen. Its expression is induced by heme and other stress stimuli such as heavy metals cytokines and reactive oxygen species.
Biological function summary	Heme Oxygenase 1 serves important protective functions in the body. It is not part of a larger complex but its products such as carbon monoxide and biliverdin have their own biological activities. Carbon monoxide produced by HO-1 has antiflammatory properties and can modulate apoptotic pathways. Biliverdin is reduced to bilirubin which acts as an antioxidant. The enzyme therefore directly influences cellular stress responses and maintains cellular homeostasis through these processes.
Pathways	Heme Oxygenase 1 is integrally involved in oxidative stress response and heme metabolism. It participates in the cellular response to oxidative damage by reducing oxidative stress and promoting cytoprotection. Through its heme degradation activity it is connected with the synthesis of biologically active molecules like bilirubin and carbon monoxide. Heme Oxygenase 1 activity is related to other proteins in oxidative stress pathways such as Nuclear Factor Erythroid 2-Related Factor 2 (Nrf2) which regulates its expression and globins which are sources of heme for HO-1 activity.
Associated diseases and disorders	Heme Oxygenase 1 has been linked to conditions like cardiovascular diseases and neurodegenerative disorders. Its expression can attenuate the severity of

atherosclerosis where oxidative stress is an important factor. In neurodegenerative diseases HO-1's antioxidant properties may provide neuroprotection by mitigating oxidative damage. The protein's interactions with inflammatory cytokines such as Interleukin-6 and tumor necrosis factor-alpha influence its activity in these disease contexts.

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

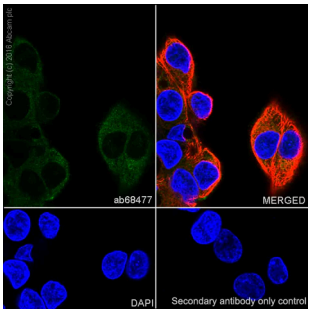
We do not recommend this combination. It is not covered by our product promise.

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

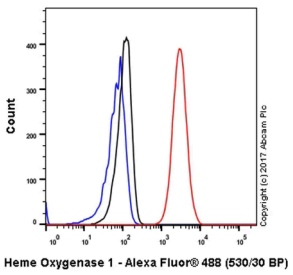


Immunocytochemistry/ Immunofluorescence - Anti-Heme Oxygenase 1 antibody [EPR1390Y] - BSA and Azide free (ab221215)

Heme Oxygenase 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Heme Oxygenase 1 antibody

Immunocytochemistry/Immunofluorescence analysis of HepG2 (Human liver hepatocellular carcinoma cell line) cells labeling Heme Oxygenase 1 with purified ab68477 at 1/100. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. A goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at a dilution of 1/1000. DAPI was used as a nuclear counterstain.
Negative control 1: PBS only.

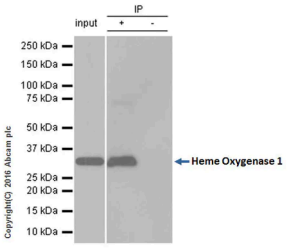
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab68477).



Flow Cytometry (Intracellular) - Anti-Heme Oxygenase 1 antibody [EPR1390Y] - BSA and Azide free (ab221215)

Heme Oxygenase 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Heme Oxygenase 1 antibody

Intracellular Flow Cytometry analysis of A549 (human lung carcinoma) cells labeling with purified ab68477 at 1/200 dilution (1ug/ml) (Red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) (ab172730) was used as a isotype control.Cell without incubation with primary antibody and secondary antibody (Blue) were used as unlabeled control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab68477).



Immunoprecipitation - Anti-Heme Oxygenase 1 antibody [EPR1390Y] - BSA and Azide free (ab221215)

ab68477 (purified) at 1/20 immunoprecipitating Heme Oxygenase 1 in A549 (Human lung carcinoma cell line) whole cell lysate.
Lane 1 (input): A549 whole cell lysate (10ug).

Lane 2 (+): ab68477 + A549 whole cell lysate.

Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab133267 in HeLa whole cell lysate.

Blocking buffer and concentration: 5% NFDM/TBST.

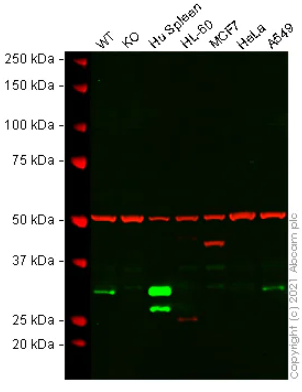
Diluting buffer and concentration: 5% NFDM /TBST.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab68477).

All lanes:
Immunoprecipitation - Anti-Heme Oxygenase 1 antibody [EPR1390Y] (ab68477)

Predicted band size: 33 kDa

Observed band size: 33 kDa



Western blot - Anti-Heme Oxygenase 1 antibody [EPR1390Y] - BSA and Azide free (ab221215)

Heme Oxygenase 1 Western blot staining using rabbit Anti-Heme Oxygenase 1 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab68477).
Lanes 1 - 7: Merged signal (red and green). Green - ab68477 observed at 33 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55 kDa.

ab68477 was shown to react with Heme Oxygenase 1 in wild-type A549 cells in Western blot with loss of signal observed in HMOX1 knockout cell line ab269503 (knockout cell lysate ab269665).

Wild-type A549 and HMOX1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in fluorescent western blot (TBS-based) blocking solution before incubation with ab68477 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4 °C at a 1 in 10000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 h at room temperature before imaging.
All lanes:
Western blot - Anti-Heme Oxygenase 1 antibody [EPR1390Y] (ab68477) at 1/10000 dilution

Lane 1:
Wild-type A549 cell lysate at 20 µg

Lane 2:
Western blot - Human HMOX1 (Heme Oxygenase 1) knockout A549 cell lysate (ab269665) at 20 µg

Lane 3:
Human Spleen tissue lysate at 20 µg

Lane 4:
HL-60 cell lysate at 20 µg

Lane 5:
MCF7 cell lysate at 20 µg

Lane 6:
HeLa cell lysate at 20 µg

Lane 7:
A549 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 33 kDa

Observed band size: 33 kDa

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