abcam

ab224677

Anti-Heme Oxygenase 1 antibody [EPR18161-128] - 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	EPR18161-128
Purification technique	Affinity purification Protein A
Concentration	0.97 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	-

Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

ICC/IF

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Rat
Dilution info	-
Notes	-

Expected

Species	Mouse, Human
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

ab224677 is the carrier-free version of ab189491.

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.

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

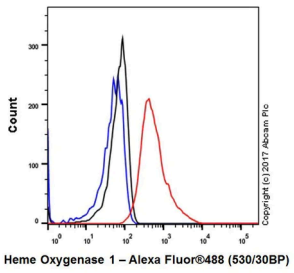
We do not recommend this combination. It is not covered by our product promise.

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.

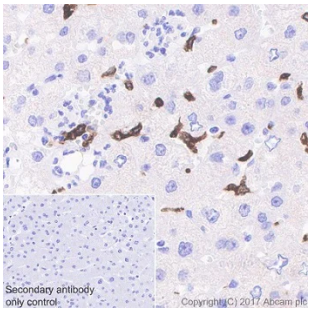
9 product images



Flow Cytometry (Intracellular) - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

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

Intracellular flow cytometric analysis of 90% methanol/4% paraformaldehyde fixed HeLa (human cervix adenocarcinoma epithelial cell) cell line labeling Heme Oxygenase 1 with ab189491 at 1/50 (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).

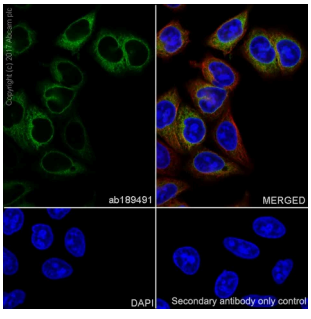


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

Heme Oxygenase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Heme Oxygenase 1 antibody

Immunohistochemical analysis of paraffin embedded human liver tissue labeling Heme Oxygenase 1 with ab189491 at 1/20000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Positive staining on Kupffer cells of human liver (PMID: 9449694) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

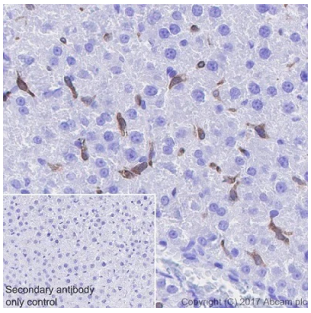
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).



Immunocytochemistry/ Immunofluorescence - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

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

Immunofluorescent analysis of 4% paraformaldehyde fixed, 0.1% Triton X-100 permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labeling Heme Oxygenase 1 with ab189491 at 1/250 dilution, followed by ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HeLa cells. Details of counterstains: ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution; DAPI for nuclei.
The negative controls are as follows: Secondary antibody only for control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).

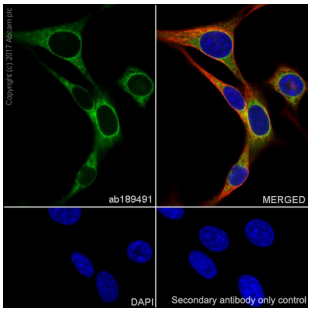


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

Heme Oxygenase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Heme Oxygenase 1 antibody

Immunohistochemical analysis of paraffin embedded rat liver tissue labeling Heme Oxygenase 1 with ab189491 at 1/20,000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Positive staining on Kupffer cells of rat liver (PMID: 9449694) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

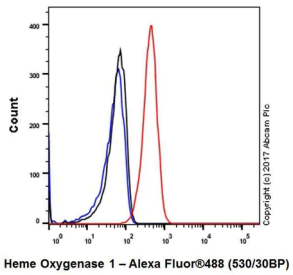
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).



Immunocytochemistry/ Immunofluorescence - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

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

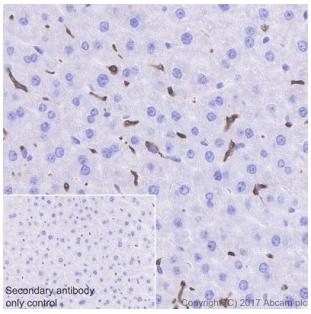
Immunofluorescent analysis of 4% paraformaldehyde fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labeling Heme Oxygenase 1 with ab189491 at 1/250 dilution, followed by ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on NIH/3T3 cells. Details of counterstains: ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution; DAPI for nuclei.
The negative controls are as follows: Secondary antibody only for control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).



Flow Cytometry (Intracellular) - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

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

Intracellular flow cytometric analysis of 90% methanol/ 4% paraformaldehyde fixed NIH/3T3 (mouse embryonic fibroblast) cell line labeling Heme Oxygenase 1 with ab189491 at 1/50 (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).

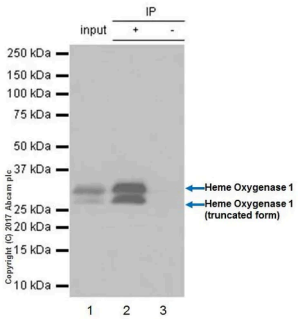


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

Heme Oxygenase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Heme Oxygenase 1 antibody

Immunohistochemical analysis of paraffin embedded mouse liver tissue labeling Heme Oxygenase 1 with ab189491 at 1/20000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Positive staining on Kupffer cells of mouse liver (PMID: 9449694) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).



Immunoprecipitation - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

Heme Oxygenase 1 was immunoprecipitated from 0.35 mg of NIH/3T3 (mouse embryonic fibroblast) whole cell lysate with ab189491 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab189491 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10,000 dilution.
Lane 1: NIH/3T3 (mouse embryonic fibroblast) whole cell lysate 10 µg (Input).
Lane 2: NIH/3T3 whole cell lysate (+).
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab189491 in NIH/3T3 whole cell lysate (-).
Blocking and dilution buffer and concentration: 5% NFDM/TBST.
The truncated form of Heme Oxygenase 1 is described in the literature (PMID: 17430897).

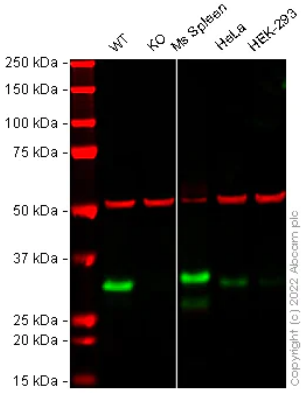
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab189491).

All lanes:
Immunoprecipitation - Anti-Heme Oxygenase 1 antibody [EPR18161-128] (ab189491)

Predicted band size: 33 kDa

Observed band size: 28 kDa, 32 kDa

Exposure time: 1s



Western blot - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677)

This data was developed using the same antibody clone in a different buffer formulation (ab189491). False colour image of Western blot: Anti-Heme Oxygenase 1 antibody [EPR18161-128] staining at 1/2000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab189491 was shown to bind specifically to Heme Oxygenase 1. A band was observed at 32 kDa in wild-type A549 cell lysates with no signal observed at this size in HMOX1 knockout cell line ab269503 (HMOX knockout A549 lysate ab259782). To generate this image, wild-type and HMOX1 knockout A549 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5 % milk in TBS-0.1 % Tween®20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
Lanes 1 - 4:
Western blot - Anti-Heme Oxygenase 1 antibody [EPR18161-128] - BSA and Azide free (ab224677) at 1/2000 dilution

Lanes 1 - 5:
Western blot - Anti-Heme Oxygenase 1 antibody [EPR18161-128] (ab189491) at 1/2000 dilution

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

Lane 2:
HMOX1 knockout A549 cell lysate at 20 µg

Lane 3:
Mouse Spleen cell lysate at 20 µg

Lane 4:
HeLa cell lysate at 20 µg

Lane 5:
HEK-293 cell lysate at 20 µg

Secondary

All lanes:
Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 32 kDa

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