abcam

ab219375

Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - 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	EPR5866
Purification technique	Affinity purification Protein A
Dissociation constant	5.5 x 10^{-12} M
Concentration	1.026 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

Expected

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

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

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	-
Notes	Heat up to 98 °C, below boiling, and then let cool for 10-20 min.

Species	Rat
Dilution info	-
Notes	Heat up to 98 °C, below boiling, and then let cool for 10-20 min.

Expected

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

Target data

See full target information PTGS1

Function

Dual cyclooxygenase and peroxidase that plays an important role in the biosynthesis pathway of prostanoids, a class of C20 oxylipins mainly derived from arachidonate ((5Z,8Z,11Z,14Z)-eicosatetraenoate, AA, C20:4(n-6)), with a particular role in the inflammatory response. The cyclooxygenase activity oxygenates AA to the hydroperoxy endoperoxide prostaglandin G2 (PGG2), and the peroxidase activity reduces PGG2 to the hydroxy endoperoxide prostaglandin H2 (PGH2), the precursor of all 2-series prostaglandins and thromboxanes. This complex transformation is initiated by abstraction of hydrogen at carbon 13 (with S-stereochemistry), followed by insertion of molecular O2 to form the endoperoxide

bridge between carbon 9 and 11 that defines prostaglandins. The insertion of a second molecule of O2 (bis-oxygenase activity) yields a hydroperoxy group in PGG2 that is then reduced to PGH2 by two electrons (PubMed:7947975). Involved in the constitutive production of prostanoids in particular in the stomach and platelets. In gastric epithelial cells, it is a key step in the generation of prostaglandins, such as prostaglandin E2 (PGE2), which plays an important role in cytoprotection. In platelets, it is involved in the generation of thromboxane A2 (TXA2), which promotes platelet activation and aggregation, vasoconstriction and proliferation of vascular smooth muscle cells (Probable). Can also use linoleate (LA, (9Z,12Z)-octadecadienoate, C18:2(n-6)) as substrate and produce hydroxyoctadecadienoates (HODEs) in a regio- and stereospecific manner, being (9R)-HODE ((9R)-hydroxy-(10E,12Z)-octadecadienoate) and (13S)-HODE ((13S)-hydroxy-(9Z,11E)-octadecadienoate) its major products (By similarity).

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

ab219375 is the carrier-free version of ab109025.

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	Cyclooxygenase 1 (COX-1) also known as COX1 cyclooxygenase-1 COX one and the COX1 protein is an important enzyme in the conversion of arachidonic acid to prostaglandins. It is a heme-containing dimer enzyme with a molecular weight of approximately 70 kDa. COX-1 is widely expressed in most tissues and cell types where it plays a significant role in maintaining homeostatic functions. This protein is constitutively active meaning it is often active under normal physiological conditions.
Biological function summary	COX-1 is involved in producing prostaglandins that regulate a variety of normal physiological processes including gastric mucosal protection renal blood flow and platelet aggregation. Unlike COX-2 COX-1 is not induced by inflammatory stimuli and is not part of an inducible complex. It serves to maintain essential physiological functions in various organs and systems making its activity critical for cellular maintenance.
Pathways	COX-1 is primarily involved in the prostaglandin biosynthesis pathway. It converts arachidonic acid into prostaglandin H2 a precursor for other prostaglandins and thromboxanes. Thromboxane A2 produced from this pathway plays an important role in platelet aggregation and vasoconstriction linking COX-1's functions with hemostatic processes. Another protein involved in this pathway is thromboxane synthase which further processes the products of COX-1 activity.
Associated diseases and disorders	COX-1’s role connects it closely to conditions like peptic ulcers and cardiovascular diseases. Inhibition of COX-1 by nonsteroidal anti-inflammatory drugs (NSAIDs) can lead to gastric mucosal damage contributing to the development of peptic ulcers. Additionally due to its involvement in platelet aggregation COX-1 affects thrombotic diseases. COX-1's interactions with proteins such as COX-2 become relevant in inflammation and pain management where selective inhibition of COX-2 is sought to reduce adverse effects related to COX-1.

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

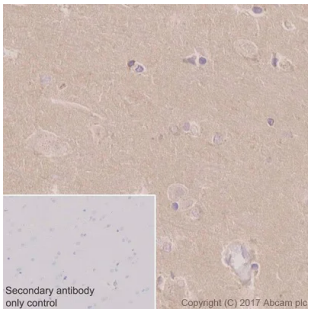
We do not recommend this combination. It is not covered by our product promise.

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.

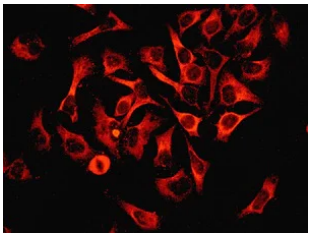
11 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

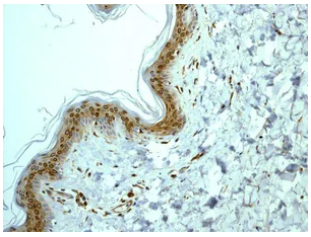
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cerebrum tissue sections labeling COX1 / Cyclooxygenase 1 with Purified ab109025 at 1:150 dilution. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).



Immunocytochemistry/ Immunofluorescence - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

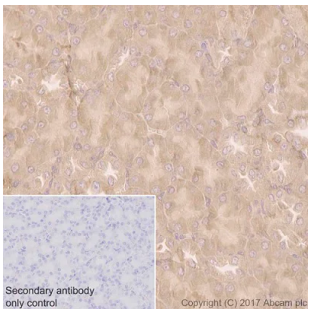
Unpurified ab109025 at 1/100 dilution staining COX1 / Cyclooxygenase 1 in HeLa cells by Immunofluorescence.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

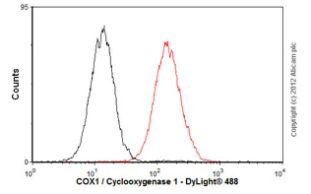
Unpurified ab109025 at 1/250 dilution staining COX1 / Cyclooxygenase 1 in Human skin by Immunohistochemistry, Paraffin-embedded tissue.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat kidney tissue sections labeling COX1 / Cyclooxygenase 1 with Purified ab109025 at 1:150 dilution. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).

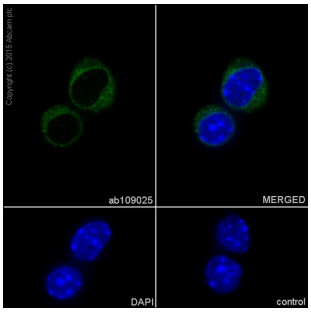


Flow Cytometry (Intracellular) - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Flow Cytometry (Intracellular) staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

Overlay histogram showing NIH3T3 cells stained with unpurified ab109025 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab109025, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).

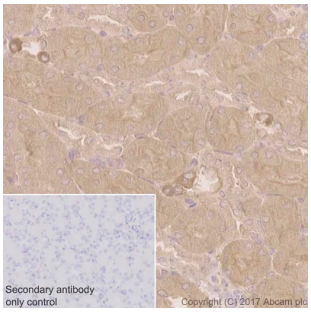


Immunocytochemistry/ Immunofluorescence - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

Immunocytochemistry/Immunofluorescence analysis of Neuro-2a (mouse neuroblastoma) labelling COX1 with purified ab109025 at 1/50. Cells were fixed with 100% methanol. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody (ab150077). Nuclei counterstained with DAPI (blue).
Control: PBS only

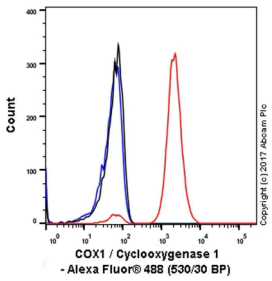
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

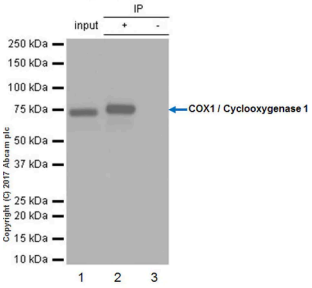
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse kidney tissue sections labeling COX1 / Cyclooxygenase 1 with Purified ab109025 at 1:150 dilution. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).



Flow Cytometry (Intracellular) - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Flow Cytometry (Intracellular) staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

Flow Cytometry analysis of NIH/3T3 (Mouse embryonic fibroblast) cells labeling COX1 / Cyclooxygenase 1 with purified ab109025 at 1:100 dilution (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluor ® 488) secondary antibody was used at 1:2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).



Immunoprecipitation - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

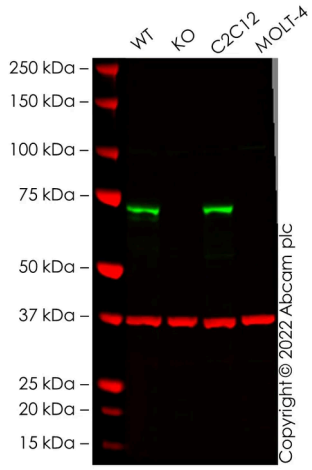
ab109025 (purified) at 1:20 dilution (0.8µg) immunoprecipitating COX1 / Cyclooxygenase 1 in C2C12 whole cell lysate.
Lane 1 (input): C2C12 (Mouse myoblasts myoblast) whole cell lysate,10µg
Lane 2 (+): ab109025 & C2C12 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab109025 in C2C12 whole cell lysate

For western blotting, VeriBlot for IP secondary antibody (HRP) (ab131366) was used as the secondary antibody at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).

All lanes:
Immunoprecipitation - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] (ab109025)

Predicted band size: 68 kDa



Western blot - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

COX1 / Cyclooxygenase 1 Western blot staining using rabbit Anti-COX1 / Cyclooxygenase 1 antibody

False colour image of Western blot: Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] staining at 1/1000 dilution, shown in green; Mouse anti-GAPDH antibody [6C5] (ab8245) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab109025 was shown to bind specifically to COX1 / Cyclooxygenase 1. A band was observed at 70 kDa in wild-type A431 cell lysates with no signal observed at this size in PTGS1 knockout cell line ab270477 (knockout cell lysate ab270500). To generate this image, wild-type and PTGS1 knockout A431 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % 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. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109025).
Lanes 1 - 4:
Western blot - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375) at 1/1000 dilution

Lanes 1 - 4:
Western blot - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] (ab109025) at 1/1000 dilution

Lane 1:
Wild-type A431 cell lysate at 20 µg

Lane 2:
PTGS1 knockout A431 cell lysate at 20 µg

Lane 3:
C2C12 cell lysate at 20 µg

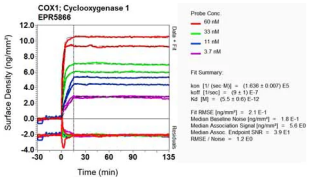
Lane 4:
MOLT-4 cell lysate at 20 µg

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: 70 kDa



OI-RD Scanning - Anti-COX1 / Cyclooxygenase 1 antibody [EPR5866] - BSA and Azide free (ab219375)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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