abcam

ab226870

Anti-COX2 / Cyclooxygenase 2 antibody [EPR18376-119] - BSA and Azide free

Recombinant | RabMAb

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	EPR18376-119
Purification technique	Affinity purification Protein A
Concentration	1.042 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	-

Notes	-

WB

Expected

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

ICC/IF

Tested

Species	Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	-
Notes	-

Target data

See full target information Ptgs2

Function

Dual cyclooxygenase and peroxidase in the biosynthesis pathway of prostanoids, a class of C20 oxylipins mainly derived from arachidonate, with a particular role in the inflammatory response (PubMed:12925531, PubMed:20463020, PubMed:20810665, PubMed:21489986, PubMed:22942274). The cyclooxygenase activity oxygenates arachidonate (AA, C20:4(n-6)) to the hydroperoxy endoperoxide prostaglandin G2 (PGG2), and the peroxidase activity reduces PGG2 to the hydroxy endoperoxide 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:12925531, PubMed:20463020, PubMed:20810665, PubMed:21489986, PubMed:22942274). Similarly catalyzes successive cyclooxygenation and peroxidation of dihomo-gamma-linoleate (DGLA, C20:3(n-6)) and eicosapentaenoate (EPA, C20:5(n-3)) to corresponding PGH1 and PGH3, the precursors of 1- and 3-series prostaglandins (By similarity). In an alternative pathway of prostanoid biosynthesis, converts 2-arachidonoyl lysophopholipids to prostanoid lysophopholipids, which are then hydrolyzed by intracellular phospholipases to release free prostanoids (By similarity). Metabolizes 2-arachidonoyl glycerol yielding the glyceryl ester of PGH2, a process that can contribute to pain response (By similarity). Generates lipid mediators from n-3 and n-6 polyunsaturated fatty acids (PUFAs) via a lipoxygenase-type mechanism. Oxygenates PUFAs to hydroperoxy compounds and then reduces them to corresponding alcohols (By similarity). Plays a role in the generation of resolution phase interaction products (resolvins) during both sterile and infectious inflammation. Metabolizes docosahexaenoate (DHA, C22:6(n-3)) to 17R-HDHA, a precursor of the D-series resolvins (RvDs). As a component of the biosynthetic pathway of E-series resolvins (RvEs), converts eicosapentaenoate (EPA, C20:5(n-3)) primarily to 18S-HEPE that is further metabolized by ALOX5 and LTA4H to generate 18S-RvE1 and 18S-RvE2. In vascular endothelial cells, converts docosapentaenoate (DPA, C22:5(n-3)) to 13R-HDPA, a precursor for 13-series resolvins (RvTs) shown to activate macrophage phagocytosis during bacterial infection (By similarity). In activated leukocytes, contributes to oxygenation of hydroxyeicosatetraenoates (HETE) to diHETES (5,15-diHETE and 5,11-diHETE) (By similarity). 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). During neuroinflammation, plays a role in neuronal secretion of specialized preresolving mediators (SPMs) 15R-lipoxin A4 that regulates phagocytic microglia (PubMed:29662056).

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

ab226870 is the carrier-free version of ab188184.

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 2 also known as COX2 is an enzyme involved in the conversion of arachidonic acid to prostaglandins which are lipid compounds with hormone-like effects. It has alternative names including prostaglandin-endoperoxide synthase 2. The molecular weight of COX2 is approximately 72 kDa. This enzyme is expressed in various tissues including the brain kidneys and areas of inflammation. COX2 expression increases during inflammatory responses and is induced by pro-inflammatory cytokines.
Biological function summary	COX2 plays a significant role in the inflammatory response and is part of the complex process of synthesizing prostaglandins. These compounds mediate inflammation and pain making COX2 an important target for understanding these processes. COX2 is not ubiquitously expressed but rather is induced in activated macrophages and other cells during inflammatory conditions. Its function is also important for normal physiological processes like ovulation and implantation.
Pathways	COX2 is essential in the prostaglandin biosynthesis pathway connecting it to the arachidonic acid metabolism pathway. Cyclooxygenase 2 works with phospholipase A2 which releases arachidonic acid from the phospholipid membrane. COX2 then converts this acid to prostaglandin H2 a precursor for other prostaglandins. COX1 the other isoform of cyclooxygenase is closely related to COX2 and while they have different expression patterns they share some functional similarities in these pathways.
Associated diseases and disorders	COX2 is connected to inflammatory conditions like arthritis and cancer. Its expression often increases in various cancer types contributing to tumor growth and metastasis by promoting angiogenesis and suppressing immune responses.

The enzyme is also linked to rheumatoid arthritis where its overexpression exacerbates inflammation. COX2 inhibitors like ketorolac tromethamine or naproxen structure mitigate symptoms by decreasing prostaglandin synthesis. These inhibitors also interact with COX1 but selective inhibition of COX2 targets inflammation more effectively with fewer gastric side effects associated with COX1 inhibition.

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

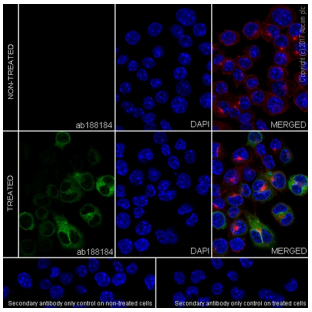
We do not recommend this combination. It is not covered by our product promise.

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.

3 product images



Immunocytochemistry/ Immunofluorescence - Anti-COX2 / Cyclooxygenase 2 antibody [EPR18376-119] - BSA and Azide free (ab226870)

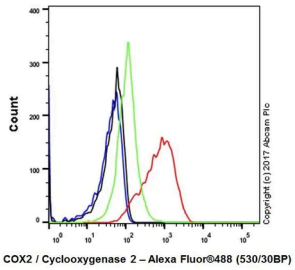
COX2 / Cyclooxygenase 2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-COX2 / Cyclooxygenase 2 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized RAW 264.7 (mouse macrophage cell line transformed with Abelson murine leukemia virus) cells, untreated or treated with lipopolysaccharide (1 µg/ml) for 6 hours, labeling COX2 / Cyclooxygenase 2 with ab188184 at 1/150 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing

increased cytoplasmic staining on RAW 264.7 cells treated with lipopolysaccharides (1 µg/ml) for 6 hours.
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

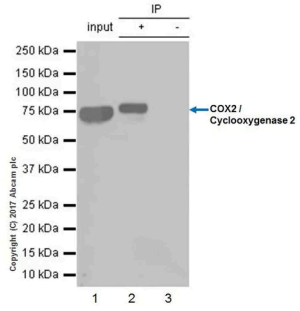
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab188184).



Flow Cytometry (Intracellular) - Anti-COX2 / Cyclooxygenase 2 antibody [EPR18376-119] - BSA and Azide free (ab226870)

COX2 / Cyclooxygenase 2 Flow Cytometry (Intracellular) staining using rabbit Anti-COX2 / Cyclooxygenase 2 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized RAW 264.7 (mouse macrophage cell line transformed with Abelson murine leukemia virus) cell line, treated with 1µg/ml LPS for 6h (red) and untreated control (green), labeling COX2 / Cyclooxygenase 2 with ab188184 at 1/600 dilution compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (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 (ab188184).



Immunoprecipitation - Anti-COX2 / Cyclooxygenase 2 antibody [EPR18376-119] - BSA and Azide free (ab226870)

COX2 / Cyclooxygenase 2 was immunoprecipitated from 0.35 mg of NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate with ab188184 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab188184 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: NIH/3T3 whole cell lysate 10µg (Input).

Lane 2: ab188184 IP in NIH/3T3 whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab188184 in NIH/3T3 whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure: 30 seconds.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab188184).

All lanes:
Immunoprecipitation - Anti-COX2 / Cyclooxygenase 2 antibody [EPR18376-119] - C-terminal (ab188184)

Predicted band size: 69 kDa

Observed band size: 74 kDa

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