

COX2 / Cyclooxygenase 2 Rabbit mAb

Catalog # AP75284

Product Information

Application	WB, FC, IP
Primary Accession	P35354
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	68996

Additional Information

Gene ID	5743
Other Names	PTGS2
Dilution	WB~~1:500-1:2000,IF: 1:50 FC~~1:10~50 IP~~1:20-1:50
Format	1xPBS(pH 7.4), 150mM NaCl, 50% Glycerol, 0.02% Sodium azide and 0.05% BSA
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	PTGS2 (HGNC:9605)
Function	Dual cyclooxygenase and peroxidase 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 (PubMed:11939906, PubMed:16373578, PubMed:19540099, PubMed:22942274, PubMed:26859324, PubMed:27226593, PubMed:7592599, PubMed:7947975, PubMed:9261177). 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 (PubMed:16373578, PubMed:22942274, PubMed:26859324, PubMed:27226593, PubMed:7592599, PubMed:7947975, PubMed:9261177). 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:[16373578](#), PubMed:[22942274](#), PubMed:[26859324](#), PubMed:[27226593](#), PubMed:[7592599](#), PubMed:[7947975](#), PubMed:[9261177](#)). 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 (PubMed:[11939906](#), PubMed:[19540099](#)). In an alternative pathway of prostanoid biosynthesis, converts 2-arachidonoyl lysophospholipids to prostanoid lysophospholipids, which are then hydrolyzed by intracellular phospholipases to release free prostanoids (PubMed:[27642067](#)). Metabolizes 2-arachidonoyl glycerol yielding the glyceryl ester of PGH₂, a process that can contribute to pain response (PubMed:[22942274](#)). 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 (PubMed:[11034610](#), PubMed:[11192938](#), PubMed:[9048568](#), PubMed:[9261177](#)). Plays a role in the generation of resolution phase interaction products (resolvins) during both sterile and infectious inflammation (PubMed:[12391014](#)). Metabolizes docosahexaenoate (DHA, C₂₂:6(n-3)) to 17R-HDHA, a precursor of the D-series resolvins (RvDs) (PubMed:[12391014](#)). 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 (PubMed:[21206090](#)). 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 (PubMed:[26236990](#)). In activated leukocytes, contributes to oxygenation of hydroxyeicosatetraenoates (HETE) to diHETES (5,15-diHETE and 5,11-diHETE) (PubMed:[22068350](#), PubMed:[26282205](#)). 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 (By similarity).

Cellular Location

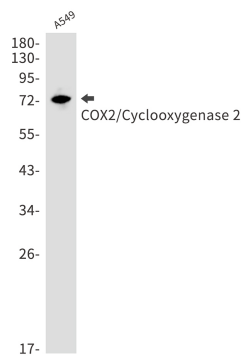
Microsome membrane; Peripheral membrane protein. Endoplasmic reticulum membrane; Peripheral membrane protein. Nucleus inner membrane; Peripheral membrane protein. Nucleus outer membrane; Peripheral membrane protein. Note=Detected on the luminal side of the endoplasmic reticulum and nuclear envelope

Background

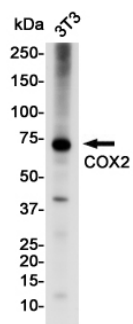
Converts arachidonate to prostaglandin H₂ (PGH₂), a committed step in prostanoid synthesis. Constitutively expressed in some tissues in physiological conditions, such as the endothelium, kidney and brain, and in pathological conditions, such as in cancer. PTGS₂ is responsible for production of inflammatory prostaglandins. Up-regulation of PTGS₂ is also associated with increased cell adhesion, phenotypic changes, resistance to apoptosis and tumor angiogenesis. In cancer cells, PTGS₂ is a key step in the production of prostaglandin E₂ (PGE₂), which plays important roles in modulating motility, proliferation and resistance to apoptosis.

Images

Western blot analysis of COX2/Cyclooxygenase 2 in A549 lysates using Cyclooxygenase 2 antibody.



Western blot analysis of COX2/Cyclooxygenase 2 in 3T3 lysates using COX2/Cyclooxygenase 2 antibody.



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