

Active Recombinant Sheep PTGS2 Protein

Cat. No. PTGS2-046S **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Sheep PTGS2 Protein (24-599) without tag was expressed in Sf21 cells using the Baculovirus system.
Species	Sheep
Source	Insect Cells
ProteinLength	24-599
Description	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:10438452). 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 (PubMed:10438452). 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 (By similarity). Similarly catalyzes successive cyclooxygenation and peroxidation of dihomogamma-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,

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converts 2-arachidonoyl lysophospholipids to prostanoid lysophospholipids, 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. 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) (By similarity). 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 (By similarity). 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). During neuroinflammation, plays a role in neuronal secretion of specialized preresolving mediators (SPMs) 15R-lipoxin A4 that regulates phagocytic microglia (By similarity).

Bio-activity Specific Activity: > 20000 U/mg

Molecular Mass ~70 kDa

Purity ≥80% as determined by SDS-PAGE

Unit Definition One unit is defined as the amount of enzyme required to consume 1 nmol of oxygen per minute at 37 centigrade in 100 mM Tris, pH 8.0, containing 100 μM arachidonate, 5 mM EDTA, 2 mM phenol, and 1 μM hematin.

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Stability ≥ 1 year

Storage At -80 centigrade.

GENE INFORMATION

Gene Name PTGS2 prostaglandin-endoperoxide synthase 2 [*Ovis aries* (sheep)]

Official Symbol PTGS2

Synonyms PTGS2; prostaglandin-endoperoxide synthase 2; PGHS-2; prostaglandin G/H synthase 2; COX-2; PGH synthase 2; PHS II; cyclooxygenase, prostaglandin endoperoxide H synthase-2; cyclooxygenase-2; prostaglandin H synthase-2; prostaglandin H2 synthase 2; prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase); EC 1.14.99.1

Gene ID 443460

mRNA Refseq NM_001009432

Protein Refseq NP_001009432

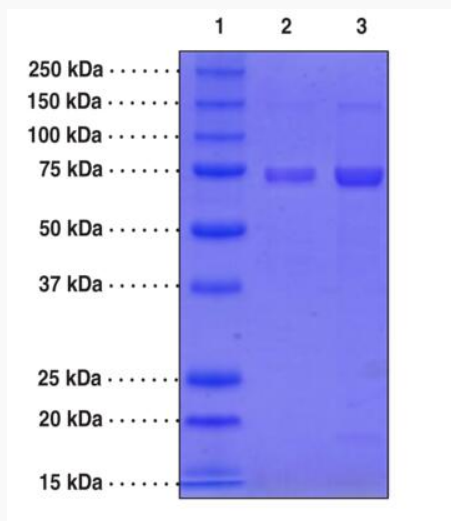
UniProt ID P79208

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**SDS-PAGE analysis
of PTGS2**



Lane 1: MW Markers

Lane 2: PTGS2 (2 µg)

Lane 3: PTGS2 (5 µg)