PRODUCT INFORMATION

COX-2 (human, recombinant)

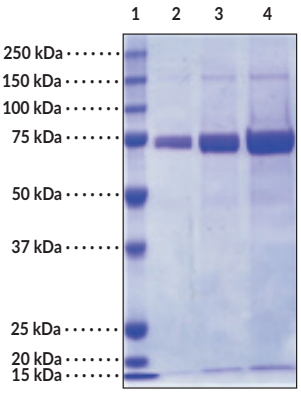
Item No. 60122

Overview and Properties

Synonyms:	Cyclooxygenase 2, Prostaglandin H Synthase 2
Source:	Active recombinant N-terminal His-tagged COX-2^{N580A} mutant purified from insect cells
Amino Acids:	20-604
Uniprot No.:	P35354
Molecular Weight:	67.9 kDa
Storage:	-80°C (as supplied)
Stability:	≥18 months
Purity:	***batch specific*** (≥75% estimated by SDS-PAGE)
Supplied in:	80 mM Tris, pH 8.0, with 0.3 mM DDC, 0.01% Tween 20, and 10% glycerol
Protein Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg
Unit Definition:	One unit of enzyme consumes one nanomole of oxygen per minute at 37°C in 0.1 M Tris-HCl buffer, pH 8.0, containing 100 µM arachidonate, 5 mM EDTA, 2 mM phenol, and 1 µM hematin. The cyclooxygenase activity of COX-2 was measured at 37°C by monitoring oxygen consumption using a Gilson Model 5/6 H oxygraph equipped with a Clark oxygen electrode.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: COX-2 (2 µg)
Lane 3: COX-2 (5 µg)
Lane 4: COX-2 (10 µg)

SDS-PAGE Analysis of COX-2.

Representative gel image shown; actual purity may vary between each batch.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM

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Description

Cyclooxygenase 2 (COX-2) is a bifunctional enzyme that exhibits both COX and peroxidase activities and catalyzes the first step in the biosynthesis of prostaglandins, thromboxanes, and prostacyclins.[1,2] The COX component converts arachidonic acid to the hydroperoxy endoperoxide prostaglandin G2 (PGG2; Item No. 17010), and the peroxidase component reduces the endoperoxide to the corresponding alcohol PGH2 (Item No. 17020). COX-2 expression is induced by a variety of stimuli, including phorbol esters, LPS, and cytokines and is responsible for the biosynthesis of PGs under acute inflammatory conditions.[3] Thus, COX-2 has been the focus of attention for the nonsteroidal anti-inflammatory drug (NSAID) development. Cayman's COX-2 (human, recombinant) contains an N-terminal hexahistidine tag and an alanine substituted for asparagine at position 580 (COX-2N580A) that prevents glycosylation at position 580 and decreases enzyme degradation in cells.[4]

References

1. Nugteren, D.H. and Hazelhof, E. Isolation and properties of intermediates in prostaglandin biosynthesis. *Biochim. Biophys. Acta* **326(3),** 448-461 (1973).
2. Hamberg, M. and Samuelsson, B. Detection and isolation of an endoperoxide intermediate in prostaglandin biosynthesis. *Proc. Natl. Acad. Sci. USA* **70(3),** 899-903 (1973).
3. Blobaum, A.L. and Marnett, L.J. Structural and functional basis of cyclooxygenase inhibition. *J. Med. Chem.* **50(7),** 1425-1441 (2007).
4. Sevigny, M.B., Li, C.-F., Alas, M., *et al.* Glycosylation regulates turnover of cyclooxygenase-2. *FEBS Lett.* **580(28-29),** 6533-6536 (2006).

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