PRODUCT INFORMATION

COX-2 (human recombinant)

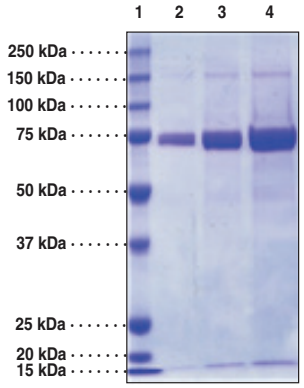
Item No. 60122

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:	≥1 year
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)

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

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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 arginine at position 508 (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. U.S.A.* **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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