PRODUCT INFORMATION

COX-1 (human, recombinant; mammalian expressed)

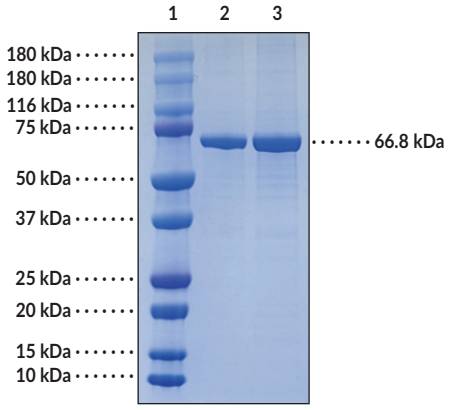
Item No. 26306

Overview and Properties

Synonyms:	Cyclooxygenase 1, PGHS-1, Prostaglandin Endoperoxide Synthase 1, Prostaglandin G/H Synthase 1, Prostaglandin H2 Synthase 1
Source:	Active recombinant human His-tagged COX-1 expressed in HEK293 cells
Amino Acids:	25-599
Uniprot No.:	P23219
Molecular Weight:	66.8 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥80% estimated by SDS-PAGE
Supplied in:	80 mM Tris, pH 8.0, with 0.3 mM diethyldithiocarbamic acid (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 is defined as the amount of enzyme required to consume 1 nmol of oxygen per 1 minute at 37°C in 100 mM Tris, pH 8.0, containing 100 µM arachidonate, 5 mM EDTA, 2 mM phenol, and 1 µM hemin.

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

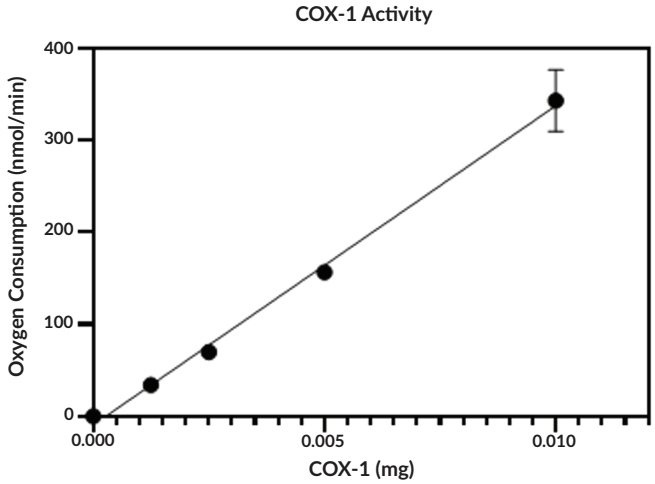
Image



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

SDS-PAGE Analysis of COX-1.

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



COX-1 (human, recombinant; mammalian expressed) activity was determined using an oxygraph to measure the consumption of oxygen during the oxidation of the substrate arachidonate.

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PRODUCT INFORMATION

Description

Cyclooxygenase 1 (COX-1) is a bifunctional enzyme that exhibits both COX and peroxidase activities.[1,2] It is composed of an N-terminal signal peptide, an EGF-like domain, a membrane binding domain, a catalytic domain, and a C-terminal tail.[3] COX-1 is constitutively expressed in the gastrointestinal tract, kidney, spleen, liver, and lung and localizes to the endoplasmic reticulum.[4,5] The COX component converts arachidonic acid (Item Nos. 90010 | 90010.1 | 10006607) to a hydroperoxyl endoperoxide prostaglandin G_2 (PGG_2; Item No. 17010) and the peroxidase component reduces the endoperoxide to the corresponding alcohol PGH_2(Item No. 17020), the precursor of PGs, thromboxanes, and prostacyclins.[1,2] COX-1 is the target of many non-steroidal anti-inflammatory drugs (NSAIDs) and is responsible for the undesirable gastrointestinal and renal side effects, such as ulcer formation and reductions in the glomerular filtration rate, respectively.[6,7] Cayman's COX-1 (human, recombinant; mammalian expressed) protein can be used for enzyme activity assays.

References

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3. Smith, W.L. and DeWitt, D.L. Prostaglandin endoperoxide H synthases-1 and -2. *Adv. Immunol.* **62**, 167-215 (1995).
4. Seibert, K., Zhang, Y., Leahy, K., *et al.* Pharmacological and biochemical demonstration of the role of cyclooxygenase 2 in inflammation and pain. *Proc. Natl. Acad. Sci. USA* **91(25)**, 12013-12017 (1994).
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7. Frölich, J.C. A classification of NSAIDs according to the relative inhibition of cyclooxygenase isoenzymes. *Trends Pharmacol. Sci.* **18(1)**, 30-34 (1997).

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