

# PRODUCT INFORMATION



## COX-1 (ovine)

Item No. 60100

### Overview and Properties

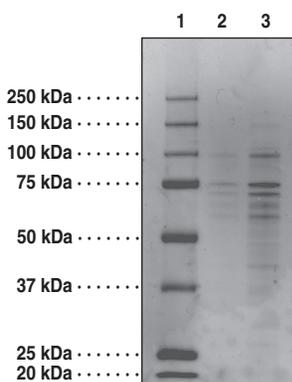
**Synonyms:** Cyclooxygenase 1, PGHS-1, Prostaglandin Endoperoxide Synthase 1, Prostaglandin G/H Synthase 1, Prostaglandin H2 Synthase 1  
**Source:** Active COX-1 isolated from ram seminal vesicles  
**Amino Acids:** Full length  
**Uniprot No.:** P05979  
**Molecular Weight:** 70 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥1 year  
**Supplied in:** 80 mM Tris-HCl, pH 8.0, containing 0.3 mM DDC, 0.1% polysorbate 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, and 2 mM phenol, and 1 µM hematin. The cyclooxygenase activity of COX-1 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: COX1 (2 µg)  
Lane 3: COX1 (5 µg)

*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.

Copyright Cayman Chemical Company, 08/09/2022

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

# PRODUCT INFORMATION



## Description

---

Cyclooxygenase 1 (COX-1) is a bifunctional enzyme that exhibits both COX and peroxidase activities.<sup>1,2</sup> 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.<sup>3</sup> COX-1 is constitutively expressed in the gastrointestinal tract, kidney, spleen, liver, and lung and localizes to the endoplasmic reticulum.<sup>4,5</sup> The COX component converts arachidonic acid (Item Nos. 90010 | 90010.1 | 10006607) to a hydroperoxyl endoperoxide prostaglandin G<sub>2</sub> (PGG<sub>2</sub>; Item No. 17010) and the peroxidase component reduces the endoperoxide to the corresponding alcohol PGH<sub>2</sub> (Item No. 17020), the precursor of PGs, thromboxanes, and prostacyclins.<sup>1,2</sup> 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.<sup>6,7</sup> Cayman's COX-1 (ovine) protein can be used for enzyme activity assays.

## 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. 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).
5. Morita, I., Schindler, M., Regier, M.K., *et al.* Different intracellular locations for prostaglandin endoperoxide H synthase-1 and -2. *J. Biol. Chem.* **270(18)**, 10902-10908 (1995).
6. Gierse, J.K., Hauser, S.D., Creely, D.P., *et al.* Expression and selective inhibition of the constitutive and inducible forms of human cyclo-oxygenase. *Biochem. J.* **305(Pt. 2)**, 379-484 (1995).
7. Frölich, J.C. A classification of NSAIDs according to the relative inhibition of cyclooxygenase isoenzymes. *Trends Pharmacol. Sci.* **18(1)**, 30-34 (1997).

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