

## COX-2 Protein, Human (sf9, His)

Cat. No.:	HY-P74222
Synonyms:	Prostaglandin G/H synthase 2; COX-2; PGHS-2
Species:	Human
Source:	Sf9 insect cells
Accession:	P35354 (M1-L604)
Gene ID:	5743
Molecular Weight:	Approximately 66 kDa

### PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm filtered solution of 50 mM Tris, 100 mM NaCl, 0.5 mM PMSF, 10% Glycerol, pH 8.0. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

#### Background

COX-2 protein serves as a dual functional enzyme in the biosynthesis pathway of prostanoids, critical mediators in the inflammatory response. Acting as both a cyclooxygenase and peroxidase, COX-2 transforms arachidonate (AA) into the hydroperoxy endoperoxide prostaglandin G<sub>2</sub> (PGG<sub>2</sub>) and further reduces it to the hydroxy endoperoxide prostaglandin H<sub>2</sub> (PGH<sub>2</sub>). This catalytic process involves hydrogen abstraction at carbon 13, followed by molecular oxygen insertion to form the characteristic endoperoxide bridge in prostaglandins. COX-2 extends its enzymatic activity to dihomo-gamma-linoleate (DGLA) and eicosapentaenoate (EPA), generating PGH<sub>1</sub> and PGH<sub>3</sub> as precursors of 1- and 3-series prostaglandins. Additionally, COX-2 contributes to the alternative prostanoid biosynthesis pathway, converting 2-arachidonoyl lysophospholipids and metabolizing 2-arachidonoyl glycerol. The enzyme also plays a role in the generation of resolution phase interaction products, contributing to the synthesis of specialized pro-resolving mediators during inflammatory processes, such as resolvins. This multifaceted functionality highlights the pivotal role of COX-2 in the intricate regulation of prostanoid production and inflammatory signaling.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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