Cyclooxygenase 2, human recombinant, expressed in Sf 21 cells

Catalog Number C0858
Storage Temperature –70 °C

EC 1.14.99.1
Synonyms: COX-2, Inducible Cyclooxygenase, Prostaglandin H Synthase 2

Product Description
COX-2 catalyzes the conversion of arachidonic acid to prostaglandin H$_2$ (the first step in the biosynthesis of prostaglandins, thromboxanes, and prostacyclins). Prostaglandin H$_2$ is converted by other enzymes into inflammatory mediators such as prostaglandin (PG) D$_2$, PGE$_2$, PGF$_{2\alpha}$, PGI$_2$, and thromboxane A$_2$. Thus, COX is a key enzyme in the production of inflammatory agents and is the target of intense research and drug discovery activities.

COX consists of two isoforms, COX-1 (599 amino acid residues) and COX-2 (604 amino acid residues). The COX enzymes, membrane-associated heme proteins that have cyclooxygenase and peroxidase activities, are targets of NSAID (non-steroidal anti-inflammatory drugs) such as aspirin.$^1$

COX-2, the inducible form of cyclooxygenase, is induced by phorbol esters, lipopolysaccharides, and cytokines. It appears to be responsible for the biosynthesis of prostaglandins under acute inflammatory conditions.$^2$

This COX-2 product is supplied as a solution in 80 mM Tris-HCl, pH 8.0 with 0.1% TWEEN® 20, 300 µM diethyldithiocarbamate, and 10% glycerol.

Note: If this preservative is undesirable, it can be removed by standard desalting procedures, but the enzyme is unstable in the absence of the preservative and so should be used within one hour.

Purity: ≥70% (SDS-PAGE)
Specific Activity: ≥8,000 units/mg protein

Unit Definition: One unit will consume 1.0 nanomole of oxygen per minute at pH 8 at 37 °C.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
COX-2 contains Fe$^{3+}$-protoporphyrin IX as a cofactor, which may dissociate from the protein during its purification, resulting in a mixture of apo- and holo-enzymes. Therefore, add hematin to the reaction mixture (1 µM final concentration) in order to obtain maximal enzyme activity.

Storage/Stability
The product should be stored at –70 °C.

Molecular mass: homodimer (70–74 kDa/subunit)

$K_m$: 6.5 µM (arachidonate, exhibits enzyme activity and sensitivity to NSAIDs similar to the non-tagged enzyme)

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References


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