

Recombinant Rat PGH2 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52345

Size: 10ug, 100ug

Protein Name: Prostaglandin G/H synthase 2 (EC 1.14.99.1) (Cyclooxygenase-2) (COX-2) (PHS II) (Prostaglandin H2 synthase 2) (PGH synthase 2) (PGHS-2) (Prostaglandin-endoperoxide synthase 2)

Synonym: Ptgs2, Cox-2, Cox2

UniProt ID: P35355

UniProt Link: www.uniprot.org/uniprotkb/P35355/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 604 AA

Molecular Weight: 69 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MLFRAVLLCAALALSHAANPCCSNPCQNRGECMSIGFDQYKCDCTRTGFYGENCTTPEFLTRIKLLL
KPTPNTVHYILTHFKGVWNIVNNIPFLRNSIMRYVLTSRSHLIDSPPTYNVHYGYKSWEAFSNLSYYT
RALPPVADDCTPTMGVKGNKELPDSKEVLEKVLLRREFIPDPQGTNMMFAFFAQHFTHQFFKTDQK
RGPGFTRGLGHGVDLNHVYGETLDRQHKLRLEFQDGKLYQVIGGEVYPPTVKDTQVDMYPPHVPE
HLRFAVGQEVFGLVPLMMYATIWLREHNRVCDILKQEHPWDDERLFQTSRLILIGETIKIVIEDYVQ
HLSGYHFKLKFDPELLFNQQFQYQNRIASEFNTLYHWHPLLPDTFNIEDQEYTFKQFLYNNNSILLEHG
LAHFVESFTRQIAGRVAGGRNVPIAVQAVAKASIDQSREMKEYQSLNEYRKRFSKPYTSFEELTGEK
EMAAELKALYHDIDAMELYPALLVEKPRPDAIFGETMVELGAPFSLKGLMGNPICSPQYWKPSTFGG
EVGFRIINTASISLICNNVKGCPFASFNVQDPQPTKTATINASASHSRLDDINPTVLIKRRSTEL

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.



Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Prostaglandin G/H synthase 2 (EC 1.14.99.1) (Cyclooxygenase-2) (COX-2) (PHS II) (Prostaglandin H2 synthase 2) (PGH synthase 2) (PGHS-2) (Prostaglandin-endoperoxide synthase 2) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Dual cyclooxygenase and peroxidase in the biosynthesis pathway of prostanoids, a class of C20 oxylipins mainly derived from arachidonate ((5Z,8Z,11Z,14Z)-eicosatetraenoate, AA, C20:4(n-6)), with a particular role in the inflammatory response. The cyclooxygenase activity oxygenates AA to the hydroperoxy endoperoxide prostaglandin G2 (PGG2), and the peroxidase activity reduces PGG2 to the hydroxy endoperoxide prostaglandin H2 (PGH2), the precursor of all 2-series prostaglandins and thromboxanes. This complex transformation is initiated by abstraction of hydrogen at carbon 13 (with S-stereochemistry), followed by insertion of molecular O₂ to form the endoperoxide bridge between carbon 9 and 11 that defines prostaglandins. The insertion of a second molecule of O₂ (bis-oxygenase activity) yields a hydroperoxy group in PGG2 that is then reduced to PGH2 by two electrons. Similarly catalyzes successive cyclooxygenation and peroxidation of dihomo- γ -linoleate (DGLA, C20:3(n-6)) and eicosapentaenoate (EPA, C20:5(n-3)) to corresponding PGH1 and PGH3, the precursors of 1- and 3-series prostaglandins. In an alternative pathway of prostanoid biosynthesis, converts 2-arachidonoyl lysophospholipids to prostanoid lysophospholipids, which are then hydrolyzed by intracellular phospholipases to release free prostanoids. Metabolizes 2-arachidonoyl glycerol yielding the glyceryl ester of PGH2, a process that can contribute to pain response. Generates lipid mediators from n-3 and n-6 polyunsaturated fatty acids (PUFAs) via a lipoxygenase-type mechanism. Oxygenates PUFAs to hydroperoxy compounds and then reduces them to corresponding alcohols. Plays a role in the generation of resolution phase interaction products (resolvins) during both sterile and infectious inflammation. Metabolizes docosahexaenoate (DHA, C22:6(n-3)) to 17R-HDHA, a precursor of the D-series resolvins (RvDs). As a component of the biosynthetic pathway of E-series resolvins (RvEs), converts eicosapentaenoate (EPA, C20:5(n-3)) primarily to 18S-HEPE that is further metabolized by ALOX5 and LTA4H to generate 18S-RvE1 and 18S-RvE2. In vascular endothelial cells, converts docosapentaenoate (DPA, C22:5(n-3)) to 13R-HDPA, a precursor for 13-series resolvins (RvTs) shown to activate macrophage phagocytosis during bacterial infection. In activated leukocytes, contributes to oxygenation of hydroxyeicosatetraenoates (HETE) to diHETES (5,15-diHETE and 5,11-diHETE). Can also use linoleate (LA, (9Z,12Z)-octadecadienoate, C18:2(n-6)) as substrate and produce hydroxyoctadecadienoates (HODEs) in a regio- and stereospecific manner, being (9R)-HODE ((9R)-hydroxy-(10E,12Z)-octadecadienoate) and (13S)-HODE ((13S)-hydroxy-(9Z,11E)-octadecadienoate) its major products (By similarity). During neuroinflammation, plays a role in neuronal secretion of specialized preresolving mediators (SPMs) 15R-lipoxin A4 that regulates phagocytic microglia (By similarity).

Subcellular Localization: Microsome membrane ; Peripheral membrane protein . Endoplasmic reticulum membrane ; Peripheral membrane protein . Nucleus inner membrane ; Peripheral membrane protein . Nucleus outer membrane ; Peripheral membrane protein . Note=Detected on the luminal side of the endoplasmic reticulum and nuclear envelope.

6. Notes



- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.