

Product Information



Prostaglandin D Synthase (hematopoietic-type; human recombinant)

Item No. 10006593

Synonyms:	H-PGDS, Hematopoietic-PGDS
Source:	Human recombinant N-terminal histidine-tagged protein; purified from an <i>E. coli</i> overexpression system
Amino Acids:	2-199
Accession No.	NP_055300
M_r:	24.3 kDa/subunit
Purity:	≥95%
Stability:	≥6 months at -80°C
Supplied in:	50 mM sodium phosphate, pH 7.2, containing 20% glycerol, 150 mM sodium chloride, and 0.5 mM EDTA
Specific activity:	40 units/mg
Protein concentration:	0.5 mg/ml
Unit definition:	One unit of enzyme produces 1 μmole of PGD ₂ per minute at 25°C in 100 mM Tris-HCl, pH 8.0, 1 mM GSH, 1 mg/ml γ-globulin and 40 μM PGH ₂ .

Laboratory Procedures

Prostaglandin D synthase (PGD synthase) is stable for at least six months when stored at -80°C. In the event that only a portion of the enzyme is to be used in a single experiment, it is recommended that the enzyme be aliquoted into smaller sizes and frozen at -80°C. The activity of hematopoietic PGD synthase was quantitated using Cayman Chemical's PGD₂ EIA monoclonal kit (Item No. 512021 - coming soon).

PGD synthase catalyzes the isomerization of PGH₂ to produce PGD₂. PGD₂ induces sleep, regulates nociception, inhibits platelet aggregation, and acts as an allergic mediator. Two distinct types of PGD synthase have been identified, namely the lipocalin-type enzyme (β-trace) and the hematopoietic enzyme.¹⁻⁴ Hematopoietic PGD synthase (H-PGDS) is widely distributed in the peripheral tissues and is localized in the antigen-presenting cells, mast cells, and megakaryocytes. PGD₂ is produced by H-PGDS in large quantities by allergen-stimulated mast cells and acts as a pro-inflammatory mediator in allergic reactions. H-PGDS requires glutathione for activity, belongs to the sigma-class of glutathione-S-transferases, and is 24.3 kDa in size.^{1,4,5}

References

1. Kanaoka, Y., Fujimori, K., Kikuno, R., *et al.* Structure and chromosomal localization of human and mouse genes for hematopoietic prostaglandin D synthase. *Eur. J. Biochem.* **267**, 3315-3322 (2000).
2. Jowsey, I.R., Thomson, A.M., Flanagan, J.U., *et al.* Mammalian class sigma glutathione s-transferases: catalytic properties and tissue-specific expression of human and rat GSH-dependent prostaglandin D₂ synthases. *Biochem. J.* **359**, 507-516 (2001).
3. Urade, Y., Watanabe, K., and Hayaishi, O. Prostaglandin D, E, and F synthases. *J. Lipid Mediat. Cell Signal.* **12**, 257-273 (1995).
4. Kanaoka, Y., Ago, H., Inagaki, E., *et al.* Cloning and crystal structure of hematopoietic prostaglandin D synthase. *Cell* **90**, 1085-1095 (1997).
5. Urade, Y., Fujimoto, N., Ujihara, M., *et al.* Biochemical and immunological characterization of rat spleen prostaglandin D synthetase. *J. Biol. Chem.* **262**(8), 3820-3825 (1987).

Related Products

Prostaglandin D₂ - Item No. 12010 • Prostaglandin H₂ - Item No. 17020 • Prostaglandin D Synthase (lipocalin-type) Polyclonal Antibody - Item No. 160003 • Prostaglandin D Synthase (hematopoietic-type) Polyclonal Antibody - Item No. 160013 • Prostaglandin D₂ FPLA Kit - Green - Item No. 500581 • Prostaglandin D Synthase (hematopoietic-type; human) Polyclonal Antibody - Item No. 10004337 • Prostaglandin D Synthase (hematopoietic-type; human) Monoclonal Antibody - Item No. 10004345 • Prostaglandin D Synthase (hematopoietic-type; murine) Polyclonal Antibody - Item No. 10004348

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY; NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent via email to your institution.

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Cayman Chemical

Mailing address

1180 E. Ellsworth Road
Ann Arbor, MI
48108 USA

Phone

(800) 364-9897
(734) 971-3335

Fax

(734) 971-3640

E-Mail

custserv@caymanchem.com

Web

www.caymanchem.com