# PRODUCT INFORMATION

## Prostaglandin D Synthase (hematopoietic-type; human, recombinant)

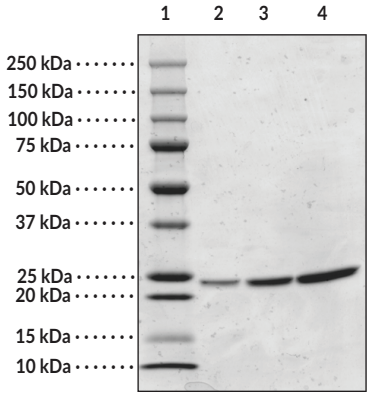
*Item No. 10006593*

### Overview and Properties

| | |
|---|---|
| **Synonyms:** | H-PGDS, hH-PGDS, Hematopoietic-PGDS, PGD Synthase (hematopoietic-type; human recombinant) |
| **Source:** | Active recombinant human N-terminal His-tagged H-PGDS expressed in *E. coli* |
| **Amino Acids:** | 1-199 (full length) |
| **Uniprot No.:** | O60760 |
| **Molecular Weight:** | 24.3 kDa |
| **Storage:** | -80°C (as supplied) |
| **Stability:** | ≥2 years |
| **Purity:** | ***batch specific*** (≥95% estimated by SDS-PAGE) |
| **Supplied in:** | 50 mM sodium phosphate, pH 7.2, containing 20% glycerol, 100 mM sodium chloride, 1 mM DTT, and 0.5 mM EDTA |
| **Protein Concentration:** | ***batch specific*** mg/ml |
| **Specific Activity:** | ***batch specific*** U/mg |
| **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 mM magnesium chloride and 40 µM $PGH_2$. |

*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

### Image




**Lane 1:** MW Markers
**Lane 2:** hH-PGDS (1 µg)
**Lane 3:** hH-PGDS (2 µg)
**Lane 4:** hH-PGDS (4 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.

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## Description

Prostaglandin D synthase (PGDS) is a glutathione-dependent enzyme and member of the sigma class of glutathione-S-transferases (GSTs) that catalyzes the conversion of $PGH_2$ (Item No. 17020) to $PGD_2$ (Item No. 12010), an eicosanoid that has numerous biological functions, including vasorelaxation, recruitment of inflammatory cells, and inhibition of platelet aggregation.[1-3] There are two types of PGDS: lipocalin PGDS (L-PGDS; Item Nos. 10006788 | 10006787 | 10010548) and hematopoietic PGDS (H-PGDS; Item Nos. 10006593 | 10004347).[3] H-PGDS is found in peripheral tissues and immune cells, including Th2 cells, antigen-presenting cells, mast cells, megakaryocytes, and eosinophils, where it is localized to the cytosol.[2] H-PGDS activity is increased by a variety of stimuli, including LPS, anti-IgE antibodies, phorbol 12-myristate 13-acetate (TPA; Item No. 10008014), ionomycin (Item No. 10004974), and inflammatory cytokines such as IL-13, IL-3, or IL-4.[3] siRNA silencing of *Hpgds* decreases LPS-induced production of $PGD_2$ in mouse bone marrow-derived macrophages (BMDMs).[4] Transgenic overexpression of *HPGDS* in mice increases croton oil-induced ear swelling and $PGD_2$ production, and genome-wide deletion of *Hpgds* exacerbates hypotension and vascular permeability in a mouse model of anaphylaxis.[5,6] H-PGDS protein levels are increased in the nasal mucosa of patients with allergic rhinitis, and *HPGDS* SNPs have been found in individuals with asthma.[1,3] Cayman's Prostaglandin D Synthase (hematopoietic-type; human, recombinant) can be used for enzyme activity assays.

## References


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2. Thurairatnam, S. Hematopoietic prostaglandin D synthase inhibitors. *Prog. Med. Chem.* **51**, 97-133 (2012).
3. Rittchen, S. and Heinemann, A. Therapeutic potential of hematopoietic prostaglandin $D_2$ synthase in allergic inflammation. *Cells* **8(6)**, 619 (2019).
4. Zhao, G., Yu, R., Deng, J., *et al*. Pivotal role of reactive oxygen species in differential regulation of lipopolysaccharide-induced prostaglandins production in macrophages. *Mol. Pharmacol.* **83(1)**, 167-178 (2013).
5. Sarashina, H., Tsubosaka, Y., Omori, K., *et al*. Opposing immunomodulatory roles of prostaglandin $D_2$ during the progression of skin inflammation. *J. Immunol.* **192(1)**, 459-465 (2014).
6. Nakamura, T., Fujiwara, Y., Yamada, R., *et al*. Mast cell-derived prostaglandin $D_2$ attenuates anaphylactic reactions in mice. *J. Allergy Clin. Immunol.* **140(2)**, 630-632 (2017).



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