

PGD2 synthase (F-7): sc-390717

BACKGROUND

Human PGD synthase is the key enzyme for production of the D and J series of prostanooids in the immune system and mast cells. This enzyme is the first member of the sigma class glutathione S-transferases (GST) from vertebrates and contains a prominent cleft as the active site, which is unique among members of the GST superfamily. The human PGD synthase gene, which maps to chromosome 4q22.3, is expressed in a species-specific manner. For instance, the human gene is widely distributed, whereas the mouse gene is only expressed in oviduct and skin. Human PGD synthase is expressed in the cytoplasm of human megakaryoblastic CMK cells prior to differentiation into platelets, which have no PGD synthase activity. Another member of the PGD synthase family, PGD2 synthase, catalyzes the conversion of PGH₂ to PGD₂ and is essential for the synthesis of PGD₂ in the brain. Unlike PGD synthase, PGD₂ synthase is not dependent on the presence of glutathione for its activity. The human PGD₂ synthase gene maps to chromosome 9q34.3.

REFERENCES

1. Nagata, A., et al. 1991. Human brain prostaglandin D synthase has been evolutionarily differentiated from lipophilic-ligand carrier proteins. *Proc. Natl. Acad. Sci. USA* 88: 4020-4024.
2. Mahmud, I., et al. 1997. Prostaglandin D synthase in human megakaryoblastic cells. *J. Biol. Chem.* 272: 28263-28266.
3. Kanaoka, Y., et al. 1997. Cloning and crystal structure of hematopoietic prostaglandin D synthase. *Cell* 90: 1085-1095.

CHROMOSOMAL LOCATION

Genetic locus: PTGDS (human) mapping to 9q34.3; Ptgsd (mouse) mapping to 2 A3.

SOURCE

PGD₂ synthase (F-7) is a mouse monoclonal antibody raised against amino acids 1-190 representing full length PGD₂ synthase of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PGD₂ synthase (F-7) is available conjugated to agarose (sc-390717 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390717 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390717 PE), fluorescein (sc-390717 FITC), Alexa Fluor® 488 (sc-390717 AF488), Alexa Fluor® 546 (sc-390717 AF546), Alexa Fluor® 594 (sc-390717 AF594) or Alexa Fluor® 647 (sc-390717 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390717 AF680) or Alexa Fluor® 790 (sc-390717 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

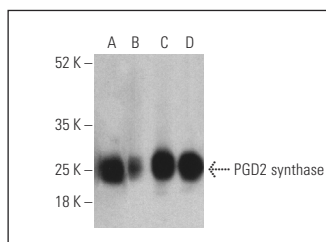
PGD₂ synthase (F-7) is recommended for detection of PGD₂ synthase of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PGD₂ synthase siRNA (h): sc-41640, PGD₂ synthase siRNA (m): sc-41641, PGD₂ synthase shRNA Plasmid (h): sc-41640-SH, PGD₂ synthase shRNA Plasmid (m): sc-41641-SH, PGD₂ synthase shRNA (h) Lentiviral Particles: sc-41640-V and PGD₂ synthase shRNA (m) Lentiviral Particles: sc-41641-V.

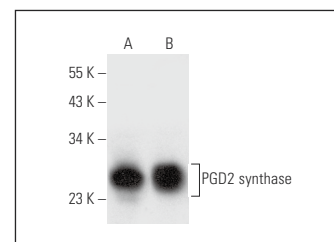
Molecular Weight of PGD₂ synthase: 21 kDa.

Positive Controls: mouse brain extract: sc-2253, mouse heart extract: sc-2254 or mouse spinal cord extract: sc-395045.

DATA



PGD₂ synthase (F-7) HRP: sc-390717 HRP. Direct western blot analysis of PGD₂ synthase expression in human heart (A), mouse spinal cord (B), rat brain (C) and mouse brain (D) tissue extracts.



PGD₂ synthase (F-7): sc-390717. Western blot analysis of PGD₂ synthase expression in mouse heart (A) and mouse spinal cord (B) tissue extracts.

SELECT PRODUCT CITATIONS

1. Wang, T.A., et al. 2019. Thermoregulation via temperature-dependent PGD₂ production in mouse preoptic area. *Neuron* 103: 309-322.e7.
2. Rebelo, B.A., et al. 2020. Synthesis and biological effects of small molecule enhancers for improved recombinant protein production in plant cell cultures. *Bioorg. Chem.* 94: 103452.
3. Wang, T.A., et al. 2021. TMEM16C is involved in thermoregulation and protects rodent pups from febrile seizures. *Proc. Natl. Acad. Sci. USA* 118: e2023342118.
4. Hu, S., et al. 2022. Glycoprotein PTGDS promotes tumorigenesis of diffuse large B-cell lymphoma by MYH9-mediated regulation of Wnt-β-catenin-Stat3 signaling. *Cell Death Differ.* 29: 642-656.
5. Pan, L., et al. 2023. Oligodendrocyte-lineage cell exocytosis and L-type prostaglandin D synthase promote oligodendrocyte development and myelination. *Elife* 12: e77441.

RESEARCH USE

For research use only, not for use in diagnostic procedures.