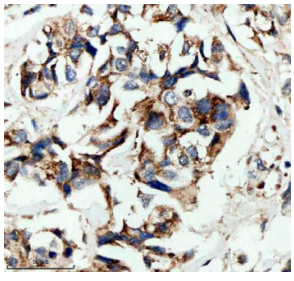
HPGD Antibody / 15-hydroxyprostaglandin dehydrogenase (FY13389)

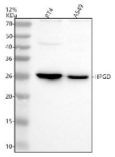
Catalog No.	Formulation	Size
FY13389	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

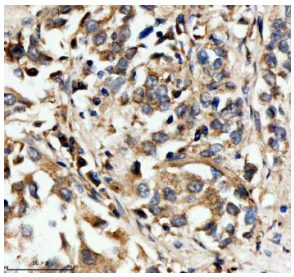
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P15428
Localization	Cytoplasm, Nucleus
Applications	Western Blot: 0.25-0.5ug/ml Immunohistochemistry: 2-5ug/ml Immunofluorescence: 5ug/ml Immunocytochemistry/Immunofluorescence: 5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This HPGD antibody is available for research use only.



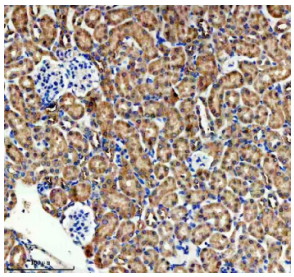
Immunofluorescent staining of HPGD using anti-HPGD antibody (green) and anti-Beta Tubulin antibody (red). HPGD was detected in an immunocytochemical section of cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-HPGD antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG and Cy3 Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



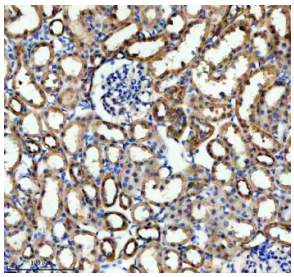
Western blot analysis of HPGD using anti-HPGD antibody. Electrophoresis was performed on a 12% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human RT4 whole cell lysates, Lane 2: human whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-HPGD antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A strong band was detected at approximately 26 kDa, which is slightly lower than the predicted 29 kDa but consistent with the known migration behavior of HPGD reported in the literature.



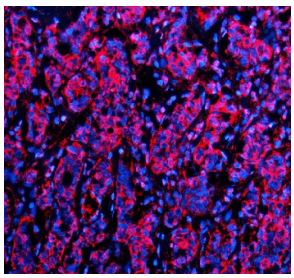
Immunohistochemical staining of HPGD using anti-HPGD antibody. HPGD was detected in a paraffin-embedded section of human lung cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-HPGD antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



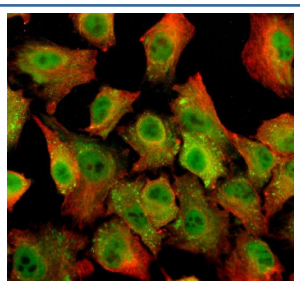
Immunohistochemical staining of HPGD using anti-HPGD antibody. HPGD was detected in a paraffin-embedded section of mouse kidney tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-HPGD antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



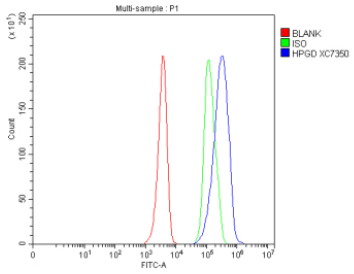
Immunohistochemical staining of HPGD using anti-HPGD antibody. HPGD was detected in a paraffin-embedded section of rat kidney tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-HPGD antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunofluorescent staining of HPGD using anti-HPGD antibody (red). HPGD was detected in a paraffin-embedded section of human breast cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 5 ug/ml rabbit anti-HPGD antibody overnight at 4oC. Cy3 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Immunohistochemical staining of HPGD using anti-HPGD antibody. HPGD was detected in a paraffin-embedded section of human breast cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-HPGD antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Flow Cytometry analysis of human HEL cells using anti-HPGD antibody. Overlay histogram showing HEL cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-HPGD antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

Description

HPGD antibody detects 15-hydroxyprostaglandin dehydrogenase, an NAD+-dependent oxidoreductase encoded by the HPGD gene located on chromosome 4q34.1. HPGD serves as the key enzyme responsible for the biological inactivation of prostaglandins by catalyzing the oxidation of the 15(S)-hydroxyl group to a keto group. Through this reaction, HPGD regulates local prostaglandin levels, modulating inflammation, vasodilation, and cell proliferation. It is expressed in lung, colon, placenta, and kidney, acting as a crucial counter-regulator of prostaglandin synthesis pathways mediated by cyclooxygenases (COX-1 and COX-2).

Structurally, HPGD is a cytosolic enzyme of approximately 29 kDa that functions as a homodimer. It belongs to the short-chain dehydrogenase/reductase (SDR) family and requires NAD+ as a cofactor for catalytic activity. Its active site includes conserved serine, tyrosine, and lysine residues essential for proton transfer and substrate oxidation. Co-localization studies show HPGD present in cytoplasmic and perinuclear regions of epithelial cells and macrophages, consistent with its role in eicosanoid metabolism.

Functionally, HPGD controls the turnover of bioactive prostaglandins such as PGE2, PGF2alpha, and PGD2. By inactivating these lipid mediators, it dampens inflammatory signaling, cell migration, and angiogenesis. HPGD also participates in the prostaglandin catabolic pathway linked to tumor suppression, as loss of HPGD function often leads to prostaglandin accumulation and oncogenic signaling. The enzyme interacts with various prostaglandin transporters and metabolic enzymes, including SLCO2A1 and AKR1C family members, to coordinate prostaglandin clearance.

Deficiency or silencing of HPGD is associated with several diseases, including colon and lung cancer, endometrial carcinoma, and familial digital clubbing caused by elevated prostaglandin E2. Overexpression, conversely, suppresses tumor growth by limiting COX-2-driven signaling. Pathway involvement includes prostaglandin degradation, arachidonic acid metabolism, and inflammation resolution. During development, HPGD contributes to vascular remodeling and placental differentiation.

The HPGD antibody from NSJ Bioreagents is a reliable reagent for studies of prostaglandin metabolism, inflammation, and cancer biology.

Application Notes

Optimal dilution of the HPGD antibody should be determined by the researcher.

Immunogen

E.coli-derived human HPGD recombinant protein (Position: A13-Q266) was used as the immunogen for the HPGD antibody.

Storage

After reconstitution, the HPGD antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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