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
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
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.

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.

Immunohistochemical staining using HPGD antibody reveals cytoplasmic localization in epithelial cells, macrophages, and placental trophoblasts. 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.