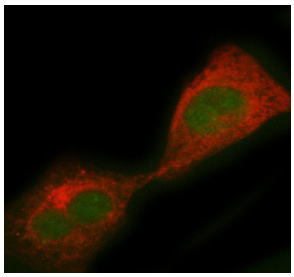
PCBD1 Antibody / Pterin-4 alpha-carbinolamine dehydratase (FY12790)

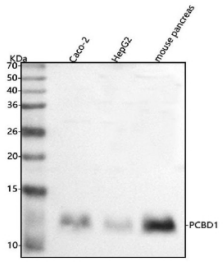
Catalog No.	Formulation	Size
FY12790	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse
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	P61457
Applications	Western Blot: 0.25-0.5ug/ml Immunocytochemistry: 5ug/ml Immunofluorescence: 5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This PCBD1 antibody is available for research use only.



Immunofluorescent staining of PCBD1 using anti-PCBD1 antibody (green) and anti-Beta Tubulin antibody (red). PCBD1 was detected in immunocytochemical section of HELA cell. 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-PCBD1 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 PCBD1 using anti-PCBD1 antibody. Lane 1: human Caco-2 whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: mouse pancreas tissue 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-PCBD1 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 enhanced chemiluminescent. A specific band was detected for PCBD1 at approximately 12 kDa. The expected molecular weight of PCBD1 is ~12 kDa.

Description

PCBD1 antibody detects Pterin-4 alpha-carbinolamine dehydratase, a bifunctional enzyme that plays a role in tetrahydrobiopterin (BH4) regeneration and acts as a dimerization cofactor for hepatocyte nuclear factor 1 alpha (HNF1A). Encoded by the PCBD1 gene on chromosome 10q22.1, this protein contributes to phenylalanine, tyrosine, and tryptophan hydroxylation by recycling BH4, an essential cofactor for aromatic amino acid hydroxylases. PCBD1 thereby supports neurotransmitter biosynthesis and amino acid metabolism while also functioning in transcriptional regulation.

In its enzymatic role, PCBD1 catalyzes the dehydration of pterin-4 alpha-carbinolamine to quinonoid dihydrobiopterin, a step required for BH4 cofactor regeneration. Independently, as a dimerization cofactor, it stabilizes the DNA-binding form of HNF1A, influencing transcription of genes involved in glucose metabolism and hepatic differentiation. This dual functionality links metabolic and transcriptional control mechanisms within hepatocytes, endocrine tissues, and the central nervous system.

The PCBD1 antibody is widely used in enzymology, metabolic, and transcriptional biology research to study BH4 metabolism, amino acid hydroxylation, and HNF1A-dependent transcription. Western blot analysis identifies a 12 kilodalton band corresponding to PCBD1, while immunofluorescence reveals cytoplasmic and nuclear localization depending on cellular context. This antibody supports the investigation of enzyme regulation and transcriptional cofactor dynamics.

Mutations in PCBD1 cause hyperphenylalaninemia and transient neonatal diabetes due to impaired cofactor recycling and altered HNF1A transcriptional activity. The PCBD1 antibody is an essential reagent for exploring metabolic diseases, neurotransmitter synthesis, and transcriptional regulation. NSJ Bioreagents provides this antibody validated for its applications, ensuring accuracy in studies of enzymatic and regulatory networks.

Application Notes

Optimal dilution of the PCBD1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PCBD1 recombinant protein (Position: M1-T105) was used as the immunogen for the PCBD1 antibody.

Storage

After reconstitution, the PCBD1 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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