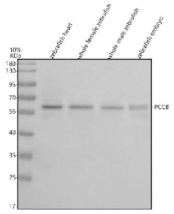
Zebrafish Pccb Antibody / Propionyl-CoA carboxylase beta chain (RZ1264)

Catalog No.	Formulation	Size
RZ1264	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	B0V0X1
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Pccb antibody is available for research use only.



Western blot analysis of Pccb protein using Zebrafish Pccb antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~61 kDa.

Description

The Zebrafish Pccb antibody targets Pccb, the Propionyl-CoA carboxylase beta chain, a mitochondrial metabolic enzyme essential for propionate catabolism, amino acid breakdown, and energy homeostasis in Danio rerio. Zebrafish, also known as Danio rerio, express pccb strongly in metabolically active tissues, including liver, kidney, muscle, and developing nervous system. Pccb localizes to the mitochondrial matrix, where it partners with the alpha subunit (Pcca) to form the holoenzyme propionyl-CoA carboxylase, which catalyzes the ATP-dependent conversion of propionyl-CoA to D-methylmalonyl-CoA. This reaction is crucial for the metabolism of odd-chain fatty acids, branched-chain amino acids, cholesterol intermediates, and propionate-derived substrates.

Pccb belongs to the biotin-dependent carboxylase family, with the beta subunit containing the carboxyltransferase domain required for catalytic activity. In zebrafish embryos, pccb expression rises during periods of organogenesis when mitochondrial energy production and metabolic interconversion increase sharply. A Zebrafish Pccb antibody is suitable for detecting mitochondrial expression in tissues undergoing active catabolism, metabolic remodeling, and oxidative energy production.

Functionally, Pccb plays a central role in maintaining metabolic balance. The propionyl-CoA carboxylase complex prevents toxic accumulation of propionyl-CoA and supports entry of metabolic intermediates into the tricarboxylic acid cycle through succinyl-CoA. In zebrafish, defects in pccb can impair mitochondrial metabolism, disrupt nitrogen and carbon flux, and produce phenotypes resembling metabolic acidosis or mitochondrial dysfunction. Because zebrafish are widely used to model inherited metabolic diseases, Pccb serves as an important marker for evaluating propionate toxicity, mitochondrial disorders, and amino acid catabolic pathways.

Structurally, zebrafish Pccb contains the catalytic carboxyltransferase fold that binds biotinylated substrates delivered from the Pcca subunit. These interactions allow coordinated transfer of carboxyl groups during propionyl-CoA metabolism. The zebrafish pccb gene maps to chromosome 9, with transcription regulated by metabolic state, mitochondrial biogenesis pathways, and developmental energy demands. Co-localization studies typically detect Pccb in mitochondrial networks of liver cells, muscle fibers, renal tissue, and neuronal populations involved in energy-intensive processes.

A Zebrafish Pccb antibody is suitable for detecting Pccb in studies focused on mitochondrial metabolism, propionate catabolism, amino acid degradation, metabolic disease modeling, and organ-specific energy regulation in Danio rerio. Its mitochondrial localization helps researchers assess metabolic flux, identify defects in branched-chain amino acid pathways, and analyze tissue-specific energy utilization during embryogenesis. Pccb expression also supports investigations into mitochondrial stress responses, nutrient-dependent developmental changes, and toxicological models involving propionate accumulation. This antibody is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Pccb antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Pccb recombinant protein (amino acids D99-L555) was used as the immunogen for the Zebrafish Pccb antibody.

Storage

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