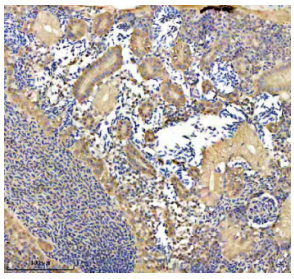
Zebrafish Eno1a Antibody / Enolase 1 (RZ1069)

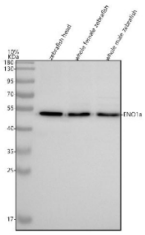
Catalog No.	Formulation	Size
RZ1069	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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	A0A2R8Q1X2
Localization	Cytoplasm
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Eno1a antibody is available for research use only.



IHC staining of FFPE zebrafish kidney tissue with Zebrafish Eno1a antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot analysis of Eno1a protein using Zebrafish Eno1a antibody and 1) zebrafish head, 2) whole female zebrafish and 3) whole male zebrafish tissue lysate. Predicted molecular weight ~47 kDa.

Description

Zebrafish (Danio rerio) Eno1a antibody recognizes Enolase 1, a conserved glycolytic enzyme encoded by the zebrafish eno1a gene. Enolase 1 catalyzes the conversion of 2-phosphoglycerate to phosphoenolpyruvate and functions as a major regulator of intermediary metabolism in proliferative and differentiating tissues. In Danio rerio embryos, eno1a is expressed from early developmental stages and shows enrichment in brain, neural tube, somites, heart, vasculature, and endoderm-derived organs such as liver and pancreas. Subcellular localization is cytosolic, with additional membrane-associated or nuclear roles reported in several vertebrate systems, reflecting its metabolic and moonlighting functions.

Enolase 1 supports metabolic plasticity during rapid embryonic growth. Zebrafish embryos depend heavily on glycolysis to meet energetic demands during cleavage, gastrulation, and organogenesis. By controlling a rate-limiting step in the glycolytic pathway, Eno1a influences ATP production, redox balance, and biosynthetic fluxes required for DNA replication, membrane synthesis, and protein turnover. Proper Eno1a activity is essential for sustaining metabolic resilience during dynamic changes in cell proliferation and differentiation.

Neural development relies significantly on Enolase 1. Neural progenitors in the brain and spinal cord have high metabolic requirements that depend on efficient glycolytic flux. Enolase 1 contributes to maintaining the energy needed for neuroepithelial proliferation, neural tube shaping, and neuronal differentiation. During later stages, differentiating neurons utilize metabolic pathways governed in part by Eno1a to support axon elongation, synaptic maturation, and responses to oxidative stress. Reduced Enolase 1 activity can impair neurogenesis, alter regional patterning, or compromise neuronal viability.

In muscle and somite development, Eno1a supports myogenic proliferation and differentiation. Somitic tissues require balanced glycolytic metabolism to support segmentation, myoblast lineage progression, and assembly of early contractile architecture. Because muscle progenitors undergo rapid transitions between proliferative and differentiating states, Eno1a helps regulate the metabolic shifts required for these developmental programs.

Cardiac development also depends on Enolase 1. Early cardiomyocytes rely on glycolysis for ATP production, particularly before mitochondrial maturation. Eno1a activity influences myocardial contractility, chamber morphogenesis, and metabolic programming as the embryonic heart transitions from early tube stages to functional pumping. Perturbation of eno1a expression can result in impaired cardiac output, abnormal looping, or altered ventricular structure.

Endoderm-derived organs such as liver and pancreas require Enolase 1 to support metabolic remodeling and biosynthetic activity during differentiation. Hepatocytes and pancreatic progenitors depend on glycolytic intermediates not only for energy but also for biosynthesis of nucleotides, amino acids, and lipids. Eno1a contributes to stress resilience in these organs during periods of rapid tissue expansion and metabolic adaptation.

Beyond its metabolic roles, Enolase 1 participates in diverse regulatory pathways, including cell survival signaling, plasminogen binding at the cell surface, and responses to hypoxia. These functions allow Eno1a to integrate metabolic and environmental cues across multiple zebrafish tissues.

This Zebrafish Eno1a antibody is suitable for detecting Enolase 1 in research focused on metabolic regulation, neural development, muscle formation, cardiac morphogenesis, and endodermal organogenesis in zebrafish. NSJ Bioreagents provides this reagent within its zebrafish and metabolic-enzyme antibody collection.

Application Notes

Optimal dilution of the Zebrafish Eno1a antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence in the middle region of zebrafish Eno1a was used as the immunogen for

the Zebrafish Eno1a antibody.

Storage

After reconstitution, the Zebrafish Eno1a antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.