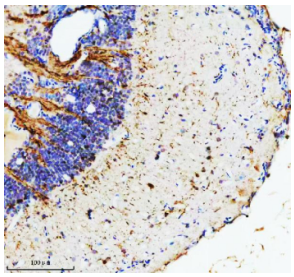
Zebrafish Hypoxanthine phosphoribosyltransferase Antibody / Hprt1 (RZ1111)

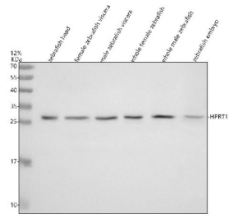
Catalog No.	Formulation	Size
RZ1111	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

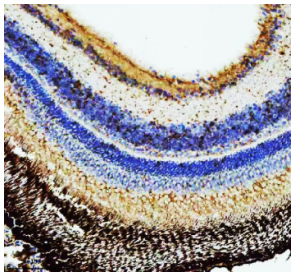
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q7ZV49
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Hypoxanthine phosphoribosyltransferase antibody is available for research use only.



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



Western blot analysis of HPRT1 protein using Zebrafish Hypoxanthine phosphoribosyltransferase antibody and 1) zebrafish head, 2) female zebrafish viscera, 3) male zebrafish viscera, 4) whole female zebrafish, 5) whole male zebrafish and 6) zebrafish embryo tissue lysate. Predicted molecular weight ~25 kDa.



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

Description

Zebrafish (Danio rerio) Hypoxanthine phosphoribosyltransferase antibody detects Hypoxanthine phosphoribosyltransferase, a key purine salvage enzyme that recycles hypoxanthine and guanine into nucleotide monophosphates. In zebrafish, the hprt1 gene encodes a conserved cytoplasmic phosphoribosyltransferase that maintains purine balance and supports DNA synthesis, RNA production, and cellular energy metabolism. Because early embryonic tissues rely heavily on efficient nucleotide recycling, Zebrafish Hypoxanthine phosphoribosyltransferase antibody reagents are widely used to study developmental metabolism, proliferative signaling, and biochemical pathways underlying tissue growth.

Hprt1 catalyzes the reaction of hypoxanthine or guanine with phosphoribosyl pyrophosphate (PRPP) to produce IMP or GMP, respectively. This salvage route compensates for the limited capacity of de novo purine synthesis during periods of rapid cell division. In zebrafish, hprt1 is expressed broadly across early embryonic stages and becomes enriched in tissues with high metabolic or proliferative demand, including the developing brain, somites, hematopoietic compartments, and visceral organs. Efficient purine recycling is essential for maintaining balanced nucleotide pools, supporting transcription, replication, and energy metabolism as embryos undergo rapid morphogenesis.

Impaired Hprt1 activity disrupts nucleotide homeostasis, affecting DNA repair, RNA turnover, and ATP production. In vertebrates, defects in purine salvage have been linked to neurological dysfunction, hematologic abnormalities, and metabolic imbalance. Although zebrafish specific disruptions remain under investigation, conservation of catalytic domains and biochemical mechanisms strongly suggests shared metabolic importance. Proper Hprt1 function helps maintain PRPP balance, preventing metabolic bottlenecks that influence broader biosynthetic pathways including amino acid metabolism, lipid synthesis, and redox regulation.

Hypoxanthine phosphoribosyltransferase is primarily cytosolic but can associate with mitochondrial and nuclear regions depending on metabolic state. It forms homotetramers that coordinate substrate binding and catalysis through conserved active-site residues. Known partners include enzymes in purine interconversion, PRPP synthesis, and pathways regulating cellular growth and stress adaptation. Because purine salvage intersects with cell signaling networks, Hprt1 influences developmental processes tied to proliferation, apoptosis resistance, and metabolic flexibility.

During zebrafish embryogenesis, purine salvage plays a defining role in neural patterning, muscle formation, cardiac development, and hematopoiesis. Precise regulation of nucleotide availability affects cell cycle progression, gene expression capacity, and the energetic demands of developing tissues. Hprt1 also supports production of purine-derived signaling molecules that regulate developmental timing, tissue maturation, and stress responses. Disrupting these pathways can impair organogenesis and compromise cellular viability.

A Zebrafish Hypoxanthine phosphoribosyltransferase antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining purine metabolism, nucleotide salvage pathways, and developmental biochemistry. This antibody targets Hprt1 for studies involving metabolic regulation, proliferative activity, and early vertebrate development. NSJ Bioreagents provides the Zebrafish Hypoxanthine phosphoribosyltransferase antibody to support research in nucleotide metabolism and embryonic physiology.

Application Notes

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

Immunogen

An E.coli-derived zebrafish HPRT1 recombinant protein (amino acids A29-R91) was used as the immunogen for the Zebrafish Hypoxanthine phosphoribosyltransferase antibody.

Storage

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