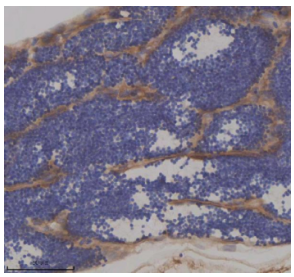
Zebrafish Ift172 Antibody / Intraflagellar transport protein 172 (RZ1049)

Catalog No.	Formulation	Size
RZ1049	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
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q5RHH4
Applications	Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Ift172 antibody is available for research use only.



Immunohistochemical analysis of Ift172 protein using Zebrafish Ift172 antibody and paraffin-embedded zebrafish testis tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Ckm antibody recognizes Creatine kinase M, detecting isoforms a and b encoded by the zebrafish ckm gene. Creatine kinase M (CKM) is a cytosolic enzyme that catalyzes the reversible transfer of phosphate from phosphocreatine to ADP, generating ATP to support immediate energy demands. CKM is a central component of the phosphocreatine energy-buffering system, ensuring stable ATP availability during periods of fluctuating metabolic load. In Danio rerio, CKM is expressed strongly throughout early myogenesis and cardiac development, with enriched localization in somites, forming skeletal muscles, heart tube, craniofacial musculature, and metabolically active mesodermal tissues. Subcellular localization is primarily cytosolic but closely associated with contractile machinery, reflecting its role in coupling energy distribution to mechanical activity.

Creatine kinase M is essential for sustaining ATP-dependent processes in developing muscle. Zebrafish embryos undergo rapid contractile maturation as somites differentiate into functional myotomes and the heart begins rhythmic beating. CKM supports these processes by facilitating high-rate ATP regeneration, enabling sarcomere assembly, actomyosin contraction, ion pump activity, and mitochondrial network formation. CKM-mediated phosphocreatine shuttling ensures that ATP production and consumption remain balanced as muscle fibers elongate, align, and integrate into functional locomotor units.

During cardiac development, CKM plays a critical role in maintaining contractile stability. As the zebrafish heart transitions from a simple tube to a chambered structure, CKM activity provides metabolic resilience required for coordinated contraction, chamber morphogenesis, and hemodynamic regulation. Reduced creatine kinase activity can impair cardiac output, disrupt heart looping, and alter myocardial organization. Because ATP demand increases rapidly during early cardiogenesis, CKM is indispensable for maintaining energetic homeostasis under these conditions.

In skeletal muscle, CKM facilitates early myofibril organization, contributing to the maturation of slow- and fast-twitch fiber domains. The enzyme supports ATP turnover required for cytoskeletal remodeling, calcium handling, and the development of neuromuscular connectivity. Zebrafish embryos with impaired energy-buffering capacity display delayed motility, reduced muscle integrity, and altered somite patterning, emphasizing the importance of CKM-dependent energy regulation.

Creatine kinase M additionally influences metabolic signaling pathways. CKM-dependent changes in ATP levels modulate AMPK activity, mitochondrial biogenesis, and redox balance. As zebrafish tissues undergo metabolic transitions from glycolytic dependency toward oxidative metabolism, CKM helps stabilize energy fluctuations that influence cell fate decisions. Isoforms a and b may reflect differential regulation of CKM activity across muscle subtypes or developmental stages, providing tissues with tailored metabolic control.

Beyond muscle, CKM contributes to energy homeostasis in other metabolically active tissues, including notochord, craniofacial mesoderm, and early endocrine organs. Proper phosphocreatine cycling supports biosynthetic pathways, ion transport, and signaling processes needed for organ expansion and differentiation. CKM also plays a role in stress-response metabolism, helping maintain ATP levels during hypoxia, mechanical strain, and environmental variation typical of early zebrafish development.

This Zebrafish Ckm antibody is suitable for detecting Creatine kinase M isoforms a and b in research focused on muscle development, cardiac maturation, metabolic regulation, mitochondrial physiology, and stress-response pathways in zebrafish. It supports studies examining phosphocreatine energy buffering, sarcomere assembly, and developmental phenotypes arising from altered ATP homeostasis. NSJ Bioreagents provides this reagent within its zebrafish and metabolic-energy antibody portfolio.

Application Notes

Optimal dilution of the Zebrafish Ift172 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Ift172 recombinant protein (amino acids D1501-Q1732) was used as the immunogen for the Zebrafish Ift172 antibody.

Storage

After reconstitution, the Zebrafish Ift172 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.