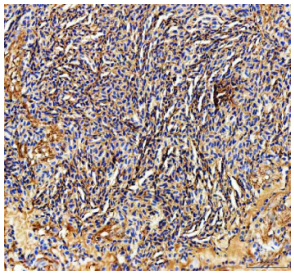
Zebrafish Ckm Antibody / Creatine kinase M / Isoforms a & b (RZ1048)

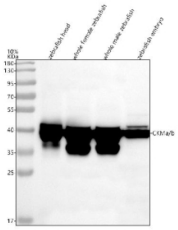
Catalog No.	Formulation	Size
RZ1048	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

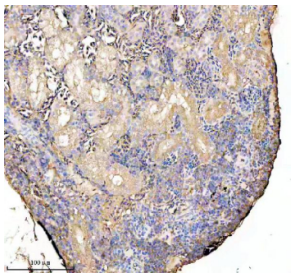
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	A2BHA3
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Ckm antibody is available for research use only.



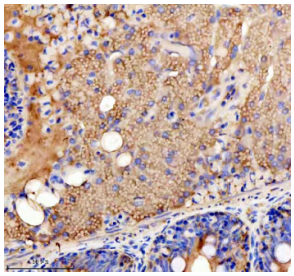
IHC staining of FFPE zebrafish spleen tissue with Zebrafish Ckm antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot analysis of Ckma/b protein using Zebrafish Ckm antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~43 kDa.



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



IHC staining of FFPE zebrafish pancreas tissue with Zebrafish Ckm antibody. 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 is a core cytosolic phosphotransfer enzyme that catalyzes the reversible transfer of a phosphate group between ATP and creatine, generating phosphocreatine as a high-energy buffer to support rapid ATP turnover. In Danio rerio, Ckm is expressed strongly in skeletal muscle, cardiac muscle, somites, and developing craniofacial musculature. Expression begins early in somitogenesis and increases as myogenic precursors differentiate into contractile muscle fibers. Subcellular localization is predominantly cytosolic, closely associated with myofibrils and regions of high ATP demand.

Creatine kinase M plays an essential role in establishing and maintaining the bioenergetic stability required for early vertebrate muscle development. As zebrafish embryos transition from reliance on yolk-derived metabolites to autonomous locomotor activity, Ckm supports ATP homeostasis during repeated muscle contraction. The phosphocreatine system provides a rapid ATP-regeneration mechanism that stabilizes energy supply during bursts of movement, sarcomere assembly, and contractile maturation. Isoforms a and b may provide tissue-specific regulation of this phosphocreatine shuttle, ensuring appropriate energy buffering across developing muscle groups.

During muscle fiber formation, Ckm integrates with mitochondrial metabolism and glycolysis to sustain efficient energy flux. Somitic muscle precursors require metabolic flexibility to support myoblast fusion, early myofibril organization, and cytoskeletal remodeling. Ckm activity helps maintain ATP availability during these energy-intensive processes. In craniofacial musculature, Creatine kinase M contributes to growth of jaw and branchial arch-derived muscles by stabilizing local ATP pools during rapid morphogenesis. In cardiac tissue, Ckm works alongside mitochondrial oxidative phosphorylation to support contractile initiation and early heart function, ensuring that cardiomyocytes maintain adequate ATP levels during increasing mechanical load.

Ckm also participates in metabolic signaling pathways that influence muscle growth, differentiation, and stress resilience. The phosphocreatine system regulates AMP/ATP ratios, indirectly affecting AMPK signaling and metabolic adaptation. Zebrafish embryos experiencing fluctuating metabolic demands rely on Ckm to buffer energy stress, preventing declines in ATP that could impair muscle development or trigger apoptosis. Because skeletal and cardiac muscles undergo extensive structural refinement during early development, Ckm-mediated phosphotransfer reactions help maintain energetic stability during these transitions.

Beyond its classical metabolic function, Creatine kinase M has been implicated in cytoskeletal organization and sarcomere alignment. Ckm associates with actin and myosin-rich regions to support spatial coupling between ATP production and contractile machinery. This spatial organization allows rapid regeneration of ATP exactly where

mechanical activity is highest, improving efficiency of early muscle performance. Isoform-specific expression of ckma and ckmb in zebrafish may allow fine-tuning of phosphocreatine buffering capacity across distinct muscle types or developmental stages.

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 interaction, and contractile energy buffering in zebrafish. It supports studies examining phosphocreatine metabolism, myofibril formation, and developmental phenotypes arising from altered energy homeostasis. NSJ Bioreagents provides this reagent within its zebrafish and metabolic-muscle biology antibody collection.

Application Notes

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

Immunogen

An E.coli-derived zebrafish Ckma/b recombinant protein (amino acids M1-K196) was used as the immunogen for the Zebrafish Ckm antibody. This antibody will detect the a and b isoforms.

Storage

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