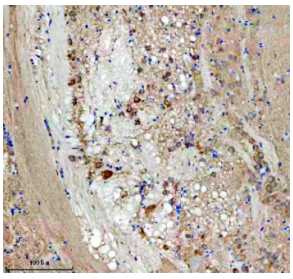
Zebrafish Eif4a1 Antibody / Isoforms a & b / Eif4a2 (RZ1051)

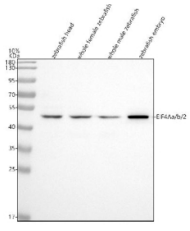
Catalog No.	Formulation	Size
RZ1051	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

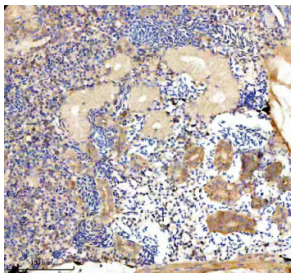
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q802C9
Applications	Western blot: 0.5-1 ug/ml Immunohistochemistry (FFPE): 2-5 ug/ml
Limitations	This Zebrafish Eif4a1 antibody is available for research use only.



Zebrafish Eif4a1 Antibody Brain IHC. Immunohistochemistry staining of FFPE zebrafish brain tissue with Zebrafish Eif4a1 antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Eif4a1 Antibody WB. Western blot analysis of Eif4a1a/b/2 protein using Zebrafish Eif4a1 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Expected molecular weight: ~46 kDa (Eif4a1a/b) and ~32 kDa (EIF4A2).



Zebrafish Eif4a1 Antibody Kidney IHC. Immunohistochemistry staining of FFPE zebrafish kidney tissue with Zebrafish Eif4a1 antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Eif4a1 antibody recognizes the ATP-dependent RNA helicases Eif4a1a, Eif4a1b, and Eif4a2, three closely related members of the DEAD-box translation initiation factor family encoded by zebrafish eif4a1a, eif4a1b, and eif4a2. These helicases unwind secondary structures in the 5 prime untranslated regions of mRNAs, enabling ribosome loading and scanning during cap-dependent translation. In Danio rerio, all three helicases show strong expression throughout early embryogenesis, with enrichment in developing brain, neural tube, somites, heart, vasculature, and rapidly proliferating endodermal tissues such as liver and pancreas. Subcellular localization is predominantly cytoplasmic, concentrated in regions of high translational activity, with additional nuclear pools associated with RNA processing transitions.

Eif4a helicases are central regulators of translational output during development. Zebrafish embryos require exceptionally high rates of protein synthesis as they undergo rapid growth, cell division, and pattern formation. By unwinding structured mRNAs, Eif4a1a, Eif4a1b, and Eif4a2 facilitate translation of transcripts encoding transcription factors, cytoskeletal regulators, signaling molecules, and metabolic enzymes that guide early lineage specification. These activities help shape transcript-specific translational efficiency across neural, mesodermal, and endodermal tissues during embryogenesis.

Neural development relies heavily on efficient translation initiation, making Eif4a family helicases essential for proper brain and spinal cord formation. Neural progenitors and differentiating neurons depend on tightly controlled protein synthesis to support cell cycle progression, axonal extension, growth cone remodeling, and synaptic maturation. Disruption of helicase activity in vertebrate systems has been associated with impaired neural tube closure, altered brain regionalization, and diminished axon outgrowth. Because eif4a1a, eif4a1b, and eif4a2 exhibit overlapping expression domains in the early nervous system, they collectively ensure sufficient translation capacity during neurogenesis.

These helicases also contribute to cardiac and skeletal muscle development. Translation of contractile proteins, mitochondrial regulators, and ion-handling components requires efficient helicase-mediated unwinding of structured mRNAs. During early heart tube formation and cardiomyocyte differentiation, Eif4a1a, Eif4a1b, and Eif4a2 help maintain adequate ATP production and structural protein synthesis. In somites and developing musculature, their activity supports sarcomere organization, cytoskeletal maturation, and metabolic stability needed for early contractile function.

Endoderm-derived organs, particularly liver and pancreas, require robust translational activity during organ primordium expansion. Many metabolic and secretory enzymes possess long or structured 5 prime UTRs that rely on Eif4a helicase function for efficient translation. Eif4a1a, Eif4a1b, and Eif4a2 collectively sustain these biosynthetic programs, supporting organogenesis and metabolic adaptation.

Eif4a family helicases also participate in stress-response regulation. Under oxidative, thermal, or metabolic stress, embryos adjust global translation rates and selectively promote survival-related mRNA recruitment. Eif4a1a, Eif4a1b, and Eif4a2 help mediate these shifts by regulating helicase activity, interacting with RNA binding proteins, and influencing ribonucleoprotein remodeling. This makes them important for embryonic resilience and adaptive gene expression.

This Zebrafish Eif4a1 antibody is suitable for detecting Eif4a1a, Eif4a1b, and Eif4a2 in research focused on translation initiation, neural development, cardiac and muscle differentiation, metabolic organogenesis, and stress-response pathways in zebrafish. NSJ Bioreagents provides this reagent within its zebrafish and RNA-regulation antibody portfolio.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Eif4a1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Eif4a1a/b/2 recombinant protein (amino acids D32-I406) was used as the immunogen for the Zebrafish Eif4a1 antibody. This antibody will detect the a and b isoforms of Eif4a1 as well as Eif4a2.

Storage

After reconstitution, the Zebrafish Eif4a1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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