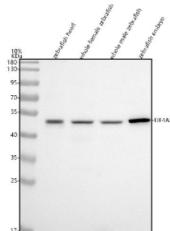


Zebrafish Eif4a2 Antibody / Eukaryotic initiation factor 4A-II (RZ1046)

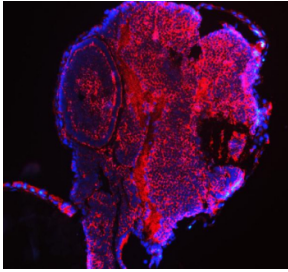
Catalog No.	Formulation	Size
RZ1046	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

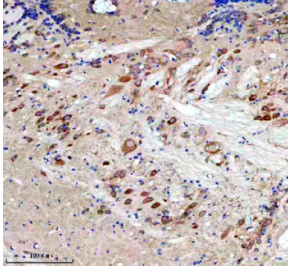
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	F1R166
Localization	Cytoplasm
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml Immunofluorescence : 5 ug/ml
Limitations	This Zebrafish Eif4a2 antibody is available for research use only.



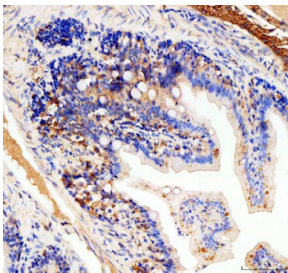
Zebrafish Eif4a2 Antibody WB. Western blot analysis of Eif4a2 protein using Zebrafish Eif4a2 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Expected molecular weight ~47 kDa.



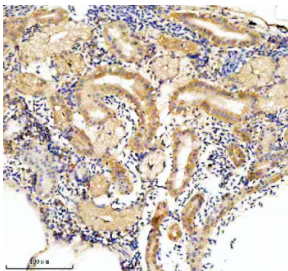
Zebrafish Eif4a2 Antibody Embryo IF. Immunofluorescent analysis of Eif4a2 protein using Zebrafish Eif4a2 antibody (red) and DAPI nuclear stain (blue). HIER: steam section in pH8 EDTA buffer for 20 min.



Zebrafish Eif4a2 Antibody Brain IHC. Immunohistochemistry staining of FFPE zebrafish brain tissue with Zebrafish Eif4a2 antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Eif4a2 Antibody Colon IHC. Immunohistochemistry staining of FFPE zebrafish colon tissue with Zebrafish Eif4a2 antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Eif4a2 Antibody Kidney IHC. Immunohistochemistry staining of FFPE zebrafish kidney tissue with Zebrafish Eif4a2 antibody. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (*Danio rerio*) Eif4a2 antibody recognizes Eukaryotic initiation factor 4A-II, a conserved ATP-dependent RNA helicase encoded by the zebrafish *eif4a2* gene. As a core component of the translation initiation machinery, Eif4a2 unwinds secondary structures in the 5 prime untranslated regions of mRNAs, facilitating ribosome recruitment and scanning. In *Danio rerio*, Eif4a2 is expressed broadly throughout embryogenesis with especially high levels in proliferative tissues including developing brain, neural tube, somites, heart, vasculature, and early endodermal organs such as liver and pancreas. Subcellular localization is predominantly cytoplasmic, concentrated in regions of active translation, although nuclear pools have been observed during transcription-coupled RNA processing transitions.

Eukaryotic initiation factor 4A-II is a key regulator of translational efficiency during rapid developmental growth. Zebrafish embryos undergo extremely high rates of protein synthesis to support morphogenetic movements, neural development, and organ formation, and Eif4a2 contributes to the initiation of numerous transcripts essential for these processes. By modulating helicase activity within the eIF4F cap-binding complex, Eif4a2 influences the translation of mRNAs that encode transcription factors, signaling intermediates, and structural proteins required for early patterning. Its activity helps shape proteome composition across neural, mesodermal, and endodermal lineages.

Neural development depends heavily on Eif4a2-regulated translation. Neural progenitors and differentiating neurons

require precise control of protein synthesis to support cell cycle progression, axon formation, and synaptic assembly. Eif4a2 participates in the translation of transcripts involved in axonal guidance, cytoskeletal remodeling, and neurotransmission-related processes. Zebrafish embryos with impaired translation initiation often exhibit defective neural tube closure, altered brain regionalization, and reduced axon outgrowth, emphasizing the importance of helicase-mediated mRNA unwinding in neurodevelopment.

Eif4a2 also supports cardiac and muscle development. Translation of contractile proteins, mitochondrial enzymes, and cytoskeletal regulators requires efficient unwinding of structured mRNAs. During heart tube formation and early cardiomyocyte maturation, Eif4a2 ensures sufficient synthesis of proteins necessary for contractility, sarcomere assembly, and metabolic stability. Somitic muscle precursors similarly depend on translational activity to establish myotome boundaries and organize early myofibrillar networks.

In endoderm-derived organs, Eif4a2 helps regulate metabolic and secretory gene expression programs. Developing liver and pancreas rely on rapid translation of enzymes, transcription factors, and growth regulators. Because many of these mRNAs contain structured 5 prime UTRs that restrict ribosome loading, Eif4a2 activity is essential for proper organogenesis and metabolic maturation.

Beyond its role in translation, Eif4a2 contributes to stress-response pathways. Under oxidative, metabolic, or thermal challenge, embryonic tissues adjust gene expression via translational repression or reactivation of specific mRNAs. Eif4a2 participates in these regulatory shifts by modulating helicase activity and interacting with RNA binding proteins that govern selective mRNA recruitment. Zebrafish embryos exposed to environmental stressors demonstrate changes in Eif4a2 distribution and activity, illustrating its importance in developmental resilience.

This Zebrafish Eif4a2 antibody is suitable for detecting Eukaryotic initiation factor 4A-II in research focused on translation initiation, neural development, cardiac and muscle differentiation, metabolic organogenesis, and stress-response mechanisms in zebrafish. It supports studies examining helicase activity, mRNA remodeling, and developmental phenotypes resulting from altered protein synthesis. 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 Eif4a2 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Eif4a2 recombinant protein (amino acids M1-Q119) was used as the immunogen for the Zebrafish Eif4a2 antibody.

Storage

After reconstitution, the Zebrafish Eif4a2 antibody can be stored for up to one month at 4°C. For long-term, aliquot and store at -20°C. Avoid repeated freezing and thawing.

