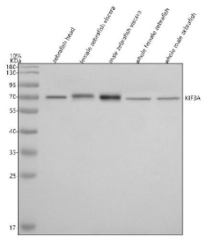
Zebrafish Kif3a Antibody (RZ1143)

Catalog No.	Formulation	Size
RZ1143	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	E9QB71
Applications	Western blot: 0.5-1 ug/ml
Limitations	This Zebrafish Kif3a antibody is available for research use only.



Zebrafish Kif3a Antibody Tissue WB. Western blot analysis of Kif3a protein using Zebrafish Kif3a antibody and 1) zebrafish head, 2) female zebrafish viscera, 3) male zebrafish viscera, 4) whole female zebrafish and 5) whole male zebrafish tissue lysate. Predicted molecular weight ~80 kDa commonly observed at 70-80 kDa.

Description

Zebrafish (Danio rerio) Kif3a antibody detects Kif3a, a core subunit of the kinesin-2 motor complex that drives anterograde intraflagellar transport (IFT) and supports the formation, maintenance, and function of cilia. In zebrafish, the kif3a gene encodes a conserved kinesin motor protein that pairs with Kif3b and the accessory subunit Kap3 to form the heterotrimeric kinesin-2 complex. This motor travels along microtubules to deliver structural components, signaling molecules, and membrane material to growing cilia. Because ciliary function is essential for left-right patterning, sensory structure development, and signal transduction, Zebrafish Kif3a antibody reagents are widely used in studies of ciliogenesis, intracellular transport, and vertebrate developmental biology.

Cilia serve as signaling hubs in embryos, mediating pathways such as Hedgehog, Wnt, PDGF, and mechanosensation. Kif3a drives the anterograde movement of IFT particles from the basal body toward the distal tip, enabling assembly of axonemal microtubules and delivery of ciliary proteins. In zebrafish embryos, kif3a is expressed in tissues rich in motile or primary cilia, including the neural tube, pronephros, KupfferÃ¢Â€Â™s vesicle, the retina, and developing sensory organs. These regions depend on precise ciliary architecture and signaling capability for proper pattern formation and morphogenesis.

Loss of Kif3a function disrupts intraflagellar transport and leads to broad developmental defects. In zebrafish, kif3a deficiency produces phenotypes characteristic of ciliary dysfunction such as body axis curvature, cystic kidneys, disrupted left-right asymmetry, and impaired mechanosensory function. Many of these phenotypes arise from improper distribution of signaling receptors and defective Hedgehog pathway activation, which rely on cilia for transducing developmental cues. Because ciliary signaling influences cell fate determination and organ patterning, Kif3a is critical for coordinating developmental signals with structural organization.

At the molecular level, Kif3a contains ATPase domains responsible for generating the mechanical force required to move cargo along microtubules. Its interaction with Kap3 ensures proper cargo recognition and binding of IFT components. Kif3a also binds membrane-associated cargos and contributes to polarized transport within cells. Although best known for its role in cilia, kinesin-2 motors including Kif3a participate in additional trafficking events such as movement of vesicles, organelles, and signaling complexes along cytoskeletal tracks.

Subcellular localization of Kif3a is enriched at basal bodies, axonemes, and microtubule networks. In ciliated tissues, Kif3a distribution reflects dynamic IFT cycles, with accumulation near the proximal ciliary compartment and movement toward the distal tip during active transport. These localization patterns help identify ciliated cell types in zebrafish embryos and serve as markers for studying ciliary assembly, cargo loading, and motor regulation.

Kif3a also influences planar cell polarity, epithelial organization, and morphogen distribution. Because cilia regulate fluid flow in structures such as KupfferÃ¢Â€Â™s vesicle, defects in Kif3a-dependent transport can impair the directional flow necessary for establishing left-right asymmetry. Zebrafish provide an ideal model for visualizing these processes in vivo due to their optical clarity and rapid development.

A Zebrafish Kif3a antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining ciliary assembly, intraflagellar transport, motor protein regulation, and developmental signaling pathways. This antibody targets Kif3a for studies involving ciliogenesis, intracellular trafficking, and vertebrate embryonic development. NSJ Bioreagents provides the Zebrafish Kif3a antibody to support research in cytoskeletal motor function and ciliary biology.

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

Application Notes

Optimal dilution of the Zebrafish Kif3a antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Kif3a recombinant protein (amino acids D486-Q701) was used as the immunogen for the Zebrafish Kif3a antibody.

Storage

After reconstitution, the Zebrafish Kif3a antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

References (1)

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