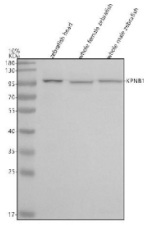
Zebrafish Kpnb1 Antibody / Importin Beta (RZ1058)

Catalog No.	Formulation	Size
RZ1058	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	A0A0R4IMZ8
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Kpnb1 antibody is available for research use only.



Zebrafish Kpnb1 Antibody WB. Western blot analysis of Importin Beta/Kpnb1 protein using Zebrafish Kpnb1 antibody and 1) zebrafish head, 2) whole female zebrafish and 3) whole male zebrafish tissue lysate. Predicted molecular weight ~97 kDa.

Description

Zebrafish (Danio rerio) Kpnb1 antibody recognizes Importin beta, a conserved nuclear transport receptor encoded by the zebrafish kpnb1 gene. Importin beta is a core component of the nuclear import machinery, mediating translocation of hundreds of cargo proteins across the nuclear envelope through the nuclear pore complex. In Danio rerio embryos, Kpnb1 is expressed broadly from early cleavage stages onward and is enriched in developing brain, neural tube, somites, heart, vasculature, and endoderm-derived organs including liver and pancreas. Subcellular localization is predominantly cytoplasmic and perinuclear, reflecting its roles in nuclear transport, cargo recognition, and regulation of Ran GTPase-dependent directional translocation.

Importin beta is essential for coordinating transcriptional and signaling programs during early development. By transporting transcription factors, chromatin regulators, and cell cycle proteins into the nucleus, Kpnb1 ensures proper gene expression timing and cellular identity. Zebrafish embryos rely on Importin beta to maintain nuclear import rates that match rapid cell division and morphogenetic movements. Reduction of Kpnb1 function in vertebrate models disrupts nuclear organization, impairs cell cycle progression, and alters developmental patterning, underscoring its central role in nucleocytoplasmic trafficking.

Neural development depends heavily on Kpnb1-mediated transport. Neural progenitors require efficient import of transcriptional regulators and RNA-binding proteins that drive regional identity, neuroepithelial organization, and neuronal differentiation. As axons extend and neural circuits form, Importin beta also participates in retrograde signaling pathways that relay injury cues or developmental signals from axons to the nucleus. High expression in brain and spinal cord tissues reflects the continuous need for balanced nuclear transport during neurogenesis.

In cardiac and vascular development, Importin beta coordinates nuclear entry of signaling intermediates and structural regulators required for heart tube formation, myocardial differentiation, and endothelial patterning. Because these tissues undergo substantial mechanical and metabolic stress, Kpnb1-mediated transport ensures that stress-response regulators and transcription factors reach the nucleus to maintain developmental stability. Perturbation of import pathways can produce cardiac malformation, impaired contractility, or aberrant vascular branching.

Somitic and skeletal muscle development also require Importin beta for nuclear transport of myogenic transcription factors, cytoskeletal regulators, and metabolic enzymes. During myotome formation, these factors dictate muscle fiber identity, sarcomere assembly, and mitochondrial maturation. Balanced Kpnb1 activity influences muscle growth and organization during early embryogenesis.

Importin beta supports endoderm-derived organs by facilitating nuclear import of regulators that govern metabolic maturation, secretory function, and organ expansion. Developing liver and pancreas depend on continuous nucleocytoplasmic signaling to coordinate differentiation and metabolic state. Kpnb1Ã¢Â€Â™s transport functions ensure that transcriptional programs respond appropriately to developmental and environmental cues.

Beyond its role in cargo transport, Importin beta regulates nuclear pore dynamics and interacts with Ran GTPase cycles that define transport directionality. Kpnb1 also participates in mitotic spindle function and chromosomal segregation during cell division, linking nuclear transport machinery with broader cell cycle control.

This Zebrafish Kpnb1 antibody is suitable for detecting Importin beta in research focused on nuclear transport, neural development, cardiac and vascular morphogenesis, muscle differentiation, and transcriptional regulation in zebrafish. NSJ Bioreagents provides this reagent within its zebrafish and nuclear-transport antibody catalog.

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

Application Notes

Optimal dilution of the Zebrafish Kpnb1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Importin Beta/Kpnb1 recombinant protein (amino acids E8-K871) was used as the immunogen for the Zebrafish Kpnb1antibody.

Storage

After reconstitution, the Zebrafish Kpnb1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.