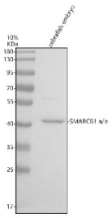
Zebrafish Smarcb1 Antibody / Smarcb1a / Smarcb1b (RZ1099)

Catalog No.	Formulation	Size
RZ1099	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	Q5U379, A0A2R8QP61
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Smarcb1 antibody is available for research use only.



Western blot analysis of SMARCB1a/b protein using Zebrafish Smarcb1 antibody and zebrafish embryo tissue lysate. The predicted molecular weight of SMARCB1a/b is ~43 kDa.

Description

Zebrafish (Danio rerio) Smarcb1 antibody detects Smarcb1, a core subunit of the SWI SNF chromatin remodeling complex that regulates transcription, developmental patterning, and cellular differentiation. In zebrafish, the smarcb1 gene is represented by two paralogs, smarcb1a and smarcb1b, both of which encode conserved chromatin regulatory proteins that help orchestrate gene accessibility during embryogenesis. Smarcb1 functions as an essential scaffolding component within SWI SNF complexes, enabling ATP dependent nucleosome repositioning that activates or represses key developmental gene programs. Because these mechanisms are deeply conserved, Smarcb1a antibody and Smarcb1b antibody reagents support studies of chromatin dynamics in early vertebrate development.

Smarcb1 participates in multiple transcriptional pathways by influencing chromatin structure at promoters and enhancers. Through interactions with BRG1 or BRM containing SWI SNF complexes, Smarcb1 modulates accessibility for transcription factors involved in neuronal specification, muscle formation, cardiac development, and axis patterning. In zebrafish embryos, smarcb1a and smarcb1b are broadly expressed in rapidly dividing tissues, including neural progenitors, somites, and early organ primordia. Reduction or disruption of Smarcb1 activity leads to defects in tissue morphology, impaired cell fate specification, and altered proliferation, reflecting its global regulatory role.

At the molecular level, Smarcb1 contributes to chromatin remodeling by stabilizing SWI SNF assembly and promoting interactions with DNA, histones, and transcriptional regulators. Its conserved repeat domains and acidic regions help anchor the remodeling machinery to chromatin. Smarcb1 also influences enhancer selection, enabling appropriate activation of lineage specific gene programs. In vertebrate models, SWI SNF mutations are associated with developmental abnormalities and altered transcriptional landscapes, reinforcing the importance of Smarcb1 during embryogenesis.

Smarcb1 is expressed in both nuclear and cytoplasmic compartments, though it functions primarily in the nucleus. The protein co localizes with transcriptional regulators, histone modification enzymes, and chromatin binding proteins. Known interaction partners include BRG1, ARID family subunits, and additional SWI SNF regulatory components. In zebrafish, these interactions integrate signaling pathways such as Wnt, BMP, and Notch with chromatin level gene control, allowing tissues to coordinate differentiation with morphogen gradients.

The zebrafish paralogs smarcb1a and smarcb1b show overlapping but not identical expression patterns. Smarcb1a often appears earlier during somitogenesis and neural plate formation, whereas smarcb1b increases during organogenesis. Both contribute to neural development, muscular patterning, cardiac morphogenesis, and structural organization of epithelial tissues. Their combined function ensures appropriate transcriptional timing as embryos transition through distinct developmental stages.

A Zebrafish Smarcb1 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining chromatin remodeling, transcriptional regulation, and lineage specification. This reagent detects endogenous Smarcb1 isoforms without implying epitope mapping or literature validated specificity. NSJ Bioreagents provides the Zebrafish Smarcb1 antibody to support studies in gene regulation, chromatin structure, neural and muscle development, and early organ formation.

Application Notes

Optimal dilution of the Zebrafish Smarcb1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish SMARCB1a/b recombinant protein (amino acids E93-D346) was used as the immunogen for the Zebrafish Smarcb1 antibody. This antibody will detect the a and b isoforms.

Storage

After reconstitution, the Zebrafish Smarcb1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.