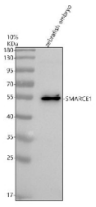
Zebrafish Smarce1 Antibody / Baf57 (RZ1131)

Catalog No.	Formulation	Size
RZ1131	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
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	A0A8M2BB53
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Smarce1 antibody is available for research use only.



Western blot analysis of Smarce1 protein using Smarce1 antibody and zebrafish embryo tissue lysate. Predicted molecular weight ~47 kDa, commonly observed at 47-57 kDa (human similarity).

Description

Zebrafish (Danio rerio) Smarce1 antibody detects Smarce1, a conserved member of the SWI/SNF chromatin remodeling complex that regulates transcription, chromatin accessibility, and lineage-specific gene expression during embryonic development. In zebrafish, the smarce1 gene encodes a protein also known as Baf57, an integral component of SWI/SNF complexes that contributes to nucleosome positioning and recruitment of transcriptional regulators. These complexes enable dynamic regulation of gene activity by altering chromatin structure, making Smarce1 essential for developmental processes requiring coordinated transcriptional control.

Smarce1 functions as a DNA-binding and protein-interaction module within SWI/SNF assemblies. Its high-mobility group

(HMG) domain promotes DNA bending, facilitating chromatin remodeling and enhancing accessibility for transcription factors. During zebrafish embryogenesis, smarce1 is expressed in developing neural structures, somites, cardiac precursors, and other tissues undergoing rapid morphogenesis. The presence of Baf57 within these regions underscores its importance in guiding transcriptional programs that govern differentiation, cell fate decisions, and organ formation.

SWI/SNF complexes containing Smarce1 influence numerous developmental pathways, including those associated with neural crest specification, heart development, muscle differentiation, and brain patterning. By integrating external cues with chromatin remodeling activity, Smarce1 helps ensure that lineage-defining genes are activated at the correct time and place. In zebrafish and other vertebrate models, disruption of smarce1 impairs neural differentiation, alters craniofacial development, and affects organogenesis due to defective transcriptional regulation and chromatin accessibility.

At the molecular level, Baf57 interacts with SWI/SNF subunits such as Smarca4, Smarcb1, and ARID family proteins, forming multiprotein complexes that reposition or evict nucleosomes. These interactions help assemble tissue-specific SWI/SNF variants that direct cell type-appropriate gene expression. Smarce1 also binds transcription factors involved in neurogenesis and mesoderm patterning, positioning SWI/SNF complexes at regulatory regions that require rapid chromatin remodeling during developmental transitions. In zebrafish, these roles contribute to neural tube formation, somite segmentation, and coordinated differentiation within mesodermal derivatives.

Smarce1 further influences cell cycle progression and proliferative capacity by regulating access to genes controlling replication, stress responses, and chromatin condensation. Because embryonic cells undergo rapid division, especially within neural and mesodermal tissues, precise control of chromatin structure is essential. Loss of Baf57 function in vertebrates disrupts normal proliferation patterns and compromises tissue integrity, highlighting the broad regulatory reach of SWI/SNF machinery.

Subcellular localization of Smarce1 is predominantly nuclear, consistent with its roles in DNA binding and chromatin remodeling. Within the nucleus, it associates with enhancer regions, promoter-proximal sites, and loci undergoing active transcriptional activation. Its interactions with regulatory proteins and chromatin-associated cofactors underscore its central role in establishing transcriptionally permissive chromatin landscapes during zebrafish development.

A Zebrafish Smarce1 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining chromatin remodeling, transcriptional regulation, and vertebrate development. This antibody targets Smarce1 for studies in neural differentiation, organogenesis, and epigenetic control mechanisms. NSJ Bioreagents provides the Zebrafish Smarce1 antibody to support investigations in chromatin biology and developmental gene regulation.

Application Notes

Optimal dilution of the Zebrafish Smarce1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Smarce1 recombinant protein (amino acids Q18-A300) was used as the immunogen for the Zebrafish Smarce1 antibody.

Storage

After reconstitution, the Zebrafish Smarce1 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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