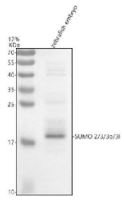
Zebrafish Sumo Antibody / Isoforms 2/3/3b/3l (RZ1037)

Catalog No.	Formulation	Size
RZ1037	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	Q6DHL4, Q6DI05, F1QRX2, Q6NV25
Applications	Western blot: 0.5-1 ug/ml
Limitations	This Zebrafish Sumo antibody is available for research use only.



Zebrafish Sumo Antibody WB. Western blot analysis of Sumo2/3/3b/3L protein using Sumo antibody and zebrafish embryo tissue lysate. The predicted molecular weight of Sumo2/3/3b/3L is 12 kDa, but it is commonly observed at 15-17 kDa.

Description

Zebrafish (Danio rerio) Sumo antibody recognizes small ubiquitin-like modifier proteins, detecting Sumo2, Sumo3, Sumo3b, and Sumo3l isoforms encoded by the zebrafish sumo gene family. SUMO proteins are essential regulators of post translational modification pathways that modulate protein stability, transcriptional activity, chromatin structure, DNA repair, and stress responses. In Danio rerio, SUMO isoforms are expressed strongly during early embryogenesis and display overlapping but distinct spatial patterns in developing brain, neural tube, somites, heart, vasculature, and proliferative endodermal tissues. SUMO proteins localize to both the nucleus and cytoplasm, with nuclear enrichment at chromatin-associated foci where SUMOylation influences transcription and genome integrity.

SUMOylation is a reversible post translational modification in which SUMO proteins are covalently attached to lysine residues on target substrates. This process, mediated by E1 activating enzymes, the Ubc9 E2 conjugating enzyme, and various E3 ligases, alters protein interactions, subcellular localization, and functional activity. In zebrafish embryos, SUMOylation helps regulate transcriptional switches that govern neural induction, neural crest patterning, mesoderm specification, and organ primordia formation. SUMO-targeted regulation of transcription factors, chromatin remodelers, and signaling intermediates ensures precise control of gene expression programs during development.

Sumo2 and Sumo3 family isoforms, recognized by this antibody, contribute heavily to chromatin-associated SUMOylation during rapid cell division in early embryos. These isoforms regulate DNA replication, DNA damage repair, and mitotic progression, safeguarding genomic stability as embryonic tissues expand. In developing neural tissues, SUMOylation influences axonal specification, synaptic organization, and neuroepithelial proliferation. SUMO modification of transcription factors such as Sox family members, Pax proteins, and homeodomain regulators impacts neural tube patterning and regionalization of the brain.

In cardiac and muscular tissues, SUMOylation modulates factors involved in sarcomere assembly, mitochondrial activity, and stress resilience. Zebrafish studies show that disruption of SUMO enzymes or SUMO isoforms impairs heart tube formation, myofibril organization, and somite alignment. SUMO pathways also affect vascular development by regulating endothelial transcriptional responses, angiogenic signaling, and cytoskeletal remodeling. Because SUMOylation influences numerous signaling pathways, including Wnt, Notch, Hedgehog, and TGF-beta cascades, these modifiers integrate post translational regulation with broader developmental networks.

SUMO3b and SUMO3l isoforms add further regulatory nuance. Although not as extensively characterized as Sumo2 and Sumo3, these variants may fine-tune SUMOylation patterns in specific tissues or developmental windows. Their detection by this antibody enables comprehensive assessment of SUMO family activity in zebrafish models. SUMOylation is also closely tied to cellular stress responses, including heat shock, oxidative stress, and metabolic challenge. Zebrafish embryos exposed to environmental stressors often exhibit dynamic SUMO isoform redistribution, highlighting the pathway's importance in embryonic resilience.

This Zebrafish Sumo antibody is suitable for detecting Sumo2, Sumo3, Sumo3b, and Sumo3l in research focused on post translational modification, chromatin regulation, neural development, cardiac morphogenesis, DNA repair, and stress-response biology in zebrafish. It supports studies examining SUMO pathway dynamics, isoform-specific regulation, and developmental phenotypes arising from altered SUMO conjugation. NSJ Bioreagents provides this reagent within its zebrafish and PTM-focused antibody collection.

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

Application Notes

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

Immunogen

An E.coli-derived zebrafish Sumo recombinant protein (amino acids Q25-T72) was used as the immunogen for the Zebrafish Sumo antibody. This antibody will detect isoforms 2, 3, 3b and 3l.

Storage

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

Copyright © NSJ Bioreagents. All rights reserved.