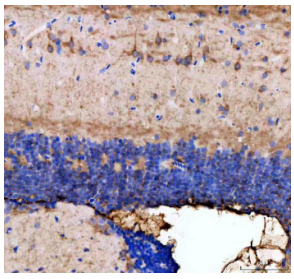
Zebrafish Dnm1 Antibody / Dnm1a / Dnm1b / Dynamin (RZ1219)

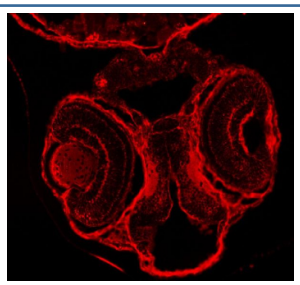
Catalog No.	Formulation	Size
RZ1219	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

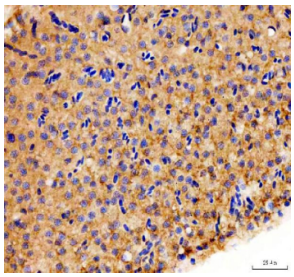
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	A0A8M2BG30, A0A8M2BCU8
Localization	Cytoplasm
Applications	Immunofluorescence : 5ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Dnm1 antibody is available for research use only.



IHC staining of FFPE zebrafish brain tissue with Zebrafish Dnm1 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunofluorescent staining of DNM1a/b protein using Zebrafish DNM1 antibody (red) and FFPE zebrafish embryo tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



IHC staining of FFPE zebrafish liver tissue with Zebrafish Dnm1 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

The Zebrafish Dnm1 antibody targets Dnm1, a GTPase essential for synaptic vesicle endocytosis, membrane fission, mitochondrial dynamics, and neurodevelopment in Danio rerio. Zebrafish, also known as Danio rerio, encode two dynamin 1 paralogs, dnm1a and dnm1b, resulting from the teleost genome duplication. Both paralogs produce large mechanochemical enzymes that oligomerize around constricting membrane necks to catalyze GTP-dependent membrane scission. Dnm1 proteins localize to presynaptic terminals, endocytic zones, and select cytoplasmic compartments, where they regulate vesicle recycling, neuronal signaling, and intracellular membrane turnover.

Dnm1 belongs to the classical dynamin family of large GTPases characterized by a GTP-binding domain, a middle domain involved in self-assembly, a pleckstrin homology domain for membrane association, a GTPase effector domain, and a C-terminal proline-rich domain that interacts with SH3-containing endocytic proteins. In zebrafish embryos and larvae, dnm1a and dnm1b display enriched expression in the developing nervous system, including the forebrain, optic tectum, spinal cord, and neuromuscular junctions. A Zebrafish Dnm1 antibody is suitable for examining cytoplasmic and punctate synaptic labeling patterns in studies of vesicle trafficking, synaptic maturation, and neuronal circuit formation.

Dnm1 plays a central role in synaptic vesicle recycling, where it mediates endocytic fission following neurotransmitter release. Disruption of Dnm1 activity alters synaptic vesicle pool replenishment, affecting neurotransmission reliability and neuronal excitability. In addition to synaptic functions, Dnm1 participates in mitochondrial fission, contributing to mitochondrial morphology, distribution, and metabolic responsiveness. Zebrafish studies demonstrate that altered dynamin 1 activity influences neuronal survival, axon development, and the organization of neuromuscular networks. Dnm1 also interfaces with endocytic adaptors such as amphiphysin and endophilin, forming complexes essential for shaping membrane curvature during clathrin-mediated endocytosis.

Structurally, Dnm1 assembles into helices around constriction sites on vesicles or tubular membranes. GTP hydrolysis drives conformational changes that generate mechanical force to complete membrane fission. Zebrafish dnm1a maps to chromosome 9 and dnm1b to chromosome 6, with regulatory elements that guide their expression in neuronal tissues undergoing rapid synaptic development. Co-localization studies often detect Dnm1 adjacent to synaptic vesicle proteins such as Synaptophysin or in proximity to dynamin-binding partners within presynaptic terminals. These distributions reflect Dnm1Ã¢Â€Â™s integrated role in coordinating membrane remodeling with neuronal function.

A Zebrafish Dnm1 antibody is suitable for detecting Dnm1 in developmental studies examining synaptic vesicle cycling, mitochondrial dynamics, endocytic pathways, and neurodevelopment in Danio rerio. Because dynamin-dependent membrane fission is essential for synaptic plasticity, vesicle pool maintenance, and neuronal activity, Dnm1 expression provides a functional marker for maturing synaptic networks. Dnm1a and Dnm1b expression patterns also support investigations into paralog-specific contributions to zebrafish nervous system development. These features make the antibody valuable for research exploring membrane biology, GTPase-regulated fission, and the molecular mechanisms underlying synaptic function, and this reagent is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Dnm1 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Dnm1a/b recombinant protein (amino acids G614-D666) was used as the immunogen for the Zebrafish Dnm1 antibody. This antibody will detect the a & b isoforms.

Storage

After reconstitution, the Zebrafish Dnm1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.