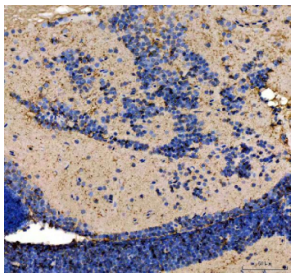
Zebrafish Atg5 Antibody / Autophagy protein 5 (RZ1164)

Catalog No.	Formulation	Size
RZ1164	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	F1RDC0
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Atg5 antibody is available for research use only.



Zebrafish Atg5 Antibody Cerebellum Tissue IHC. Immunohistochemistry staining of FFPE zebrafish cerebellum tissue with Zebrafish Atg5 antibody, HRP secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Atg5 antibody detects Atg5, an essential autophagy factor required for autophagosome formation, cargo sequestration, and cellular homeostasis. Encoded in zebrafish by the atg5 gene, Autophagy protein 5 participates in early autophagic membrane remodeling and is indispensable for the elongation of phagophore structures that eventually form mature autophagosomes. Autophagy is fundamental to vertebrate development, allowing cells to recycle proteins, maintain metabolic balance, and adapt to nutrient or stress conditions. Because these processes are tightly

integrated with growth and tissue remodeling, Zebrafish Atg5 antibody reagents support research in autophagy regulation, developmental physiology, and metabolic adaptation.

Atg5 functions through the Atg12Ã¢Â€Â“Atg5 conjugation system, a ubiquitin-like pathway that generates the Atg12-Atg5-Atg16 complex. This complex localizes to phagophore membranes and facilitates LC3 lipidation, a critical step in autophagosomal membrane expansion. In zebrafish embryos, atg5 is expressed across developing tissues, with prominent activity in muscle, liver, intestine, brain, and hematopoietic structures. These sites rely on active autophagy to regulate organogenesis, remove damaged cellular components, and sustain metabolism during rapid growth.

Autophagy plays multiple developmental roles in zebrafish. It regulates the turnover of organelles, supports neural patterning, influences muscle fiber organization, and contributes to the maturation of digestive and immune tissues. Atg5-dependent autophagy also protects cells from oxidative and metabolic stress by eliminating dysfunctional mitochondria and protein aggregates. When autophagy is impaired, zebrafish may exhibit developmental delay, abnormal morphogenesis, or increased cell death due to insufficient catabolic support.

Atg5 also participates in selective autophagy pathways. It plays roles in mitophagy, xenophagy, and the clearance of protein aggregates, allowing cells to prioritize removal of damaged or pathogenic components. These selective pathways are crucial in tissues with high metabolic activity, such as muscle and neural tissue, where dysfunctional mitochondria or misfolded proteins can disrupt ATP production or synaptic function. Zebrafish offer a valuable system for visualizing autophagy dynamics in vivo, making Atg5 an important marker for tracking autophagic flux during development and stress adaptation.

At the molecular level, Autophagy protein 5 contains domains needed for its conjugation to Atg12 and subsequent complex formation with Atg16. These interactions generate the autophagy-specific E3-like function that promotes LC3 lipidation. Subcellular localization is typically cytosolic but becomes enriched at autophagic membranes during phagophore assembly. In zebrafish embryos, dynamic Atg5 distribution reflects fluctuations in autophagic activity associated with nutrient availability, tissue remodeling, and developmental timing.

Beyond canonical autophagy, Atg5 has context-dependent roles in apoptosis and innate immunity. Some vertebrate studies suggest that cleaved Atg5 fragments can influence mitochondrial apoptosis pathways, whereas others link Atg5 to the regulation of immune signaling and pathogen defense. Although these roles remain less characterized in zebrafish, conservation of Atg5 structure suggests similar multifunctional potential.

A Zebrafish Atg5 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining autophagosome formation, cellular homeostasis, metabolic remodeling, and developmental responses to stress. This antibody targets Autophagy protein 5 for studies involving autophagic flux, mitochondrial turnover, and vertebrate developmental physiology. NSJ Bioreagents provides the Zebrafish Atg5 antibody to support research in autophagy and cellular quality control.

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

Application Notes

Optimal dilution of the Zebrafish Atg5 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Atg5 recombinant protein (amino acids S118-L155) was used as the immunogen for the Zebrafish Atg5 antibody.

Storage

After reconstitution, the Zebrafish Atg5 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.