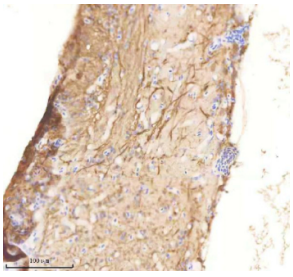
Zebrafish Rab1a Antibody / Rab1aa / Rab1ab (RZ1298)

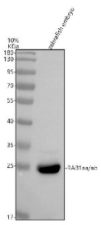
Catalog No.	Formulation	Size
RZ1298	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

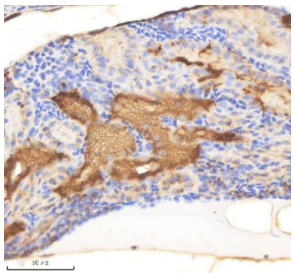
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	B8JLC8, Q7ZSZ0
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Rab1a antibody is available for research use only.



IHC staining of zebrafish Rab1aa/ab protein using Zebrafish Rab1a antibody, HRP-labeled secondary and DAB substrate. Rab1a was detected in a paraffin-embedded section of zebrafish spinal tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot analysis of Rab1aa/ab protein using Zebrafish Rab1a antibody and zebrafish embryo tissue lysates. Predicted molecular weight ~23 kDa.



IHC staining of zebrafish Rab1aa/ab protein using Zebrafish Rab1a antibody, HRP-labeled secondary and DAB substrate. Rab1a was detected in a paraffin-embedded section of zebrafish kidney tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Rab1a is a member of the Rab GTPase family, which regulates intracellular vesicle trafficking, membrane dynamics, and cellular processes such as secretion, endocytosis, and organelle maintenance. Rab1a is primarily involved in the regulation of the endoplasmic reticulum (ER) and Golgi apparatus communication. It plays a crucial role in the anterograde transport of proteins from the ER to the Golgi, as well as in the formation of vesicles during this process. It also participates in regulating vesicle docking and fusion, key events in cellular trafficking.

In zebrafish, Rab1a is the ortholog of the human RAB1A gene, with a high degree of sequence conservation and functional similarity. Both the zebrafish and human versions of Rab1a share conserved GTP-binding domains and the mechanisms necessary for vesicle trafficking. The role of Rab1a in zebrafish mirrors its function in humans, supporting processes such as protein secretion, cellular homeostasis, and membrane transport. This functional conservation makes zebrafish an excellent model for studying vesicular trafficking mechanisms and associated diseases.

In zebrafish, Rab1a exists as Rab1aa and Rab1ab, which are paralogous genes resulting from gene duplication events. Both Rab1aa and Rab1ab encode proteins with similar functions but may exhibit tissue-specific expression patterns or slight differences in their regulatory roles. While Rab1aa and Rab1ab share high sequence homology, they might have distinct roles during development or in various physiological contexts. Isoforms of Rab1a could arise through alternative splicing, allowing for specialized functions in different tissues or developmental stages.

The Rab1a proteins, including Rab1aa and Rab1ab, play significant roles in cellular processes like vesicle formation, transport, and fusion, especially in tissues with active secretion and protein processing, such as the liver, pancreas, and neurons. These proteins are involved in maintaining the proper function of the ER and Golgi, essential for protein trafficking and cellular signaling. Their roles are particularly important in maintaining the balance of protein homeostasis in cells.

Given the high conservation between zebrafish Rab1a (including Rab1aa and Rab1ab) and human RAB1A, zebrafish serve as an ideal model for investigating the molecular basis of diseases related to defects in vesicle trafficking, such as neurodegenerative diseases, metabolic disorders, and certain types of cancer. By studying Rab1a and its paralogs, researchers can explore therapeutic strategies aimed at modulating vesicle trafficking pathways, which could help in the treatment of these diseases.

Application Notes

Optimal dilution of the Zebrafish Rab1a antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Rab1a recombinant protein (amino acids R71-T195) was used as the immunogen for the Zebrafish Rab1a antibody.

Storage

After reconstitution, the Zebrafish Rab1a antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.