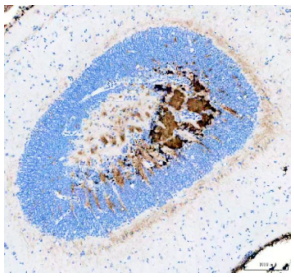
Zebrafish ATP binding cassette E1 Antibody / Abce1 (RZ1144)

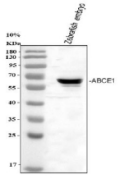
Catalog No.	Formulation	Size
RZ1144	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

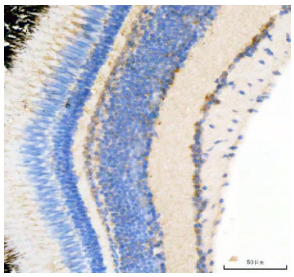
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q6TNW3
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish ATP binding cassette E1 antibody is available for research use only.



Zebrafish ATP binding cassette E1 / Abce1 Antibody Brain Tissue IHC. Immunohistochemistry staining of FFPE zebrafish brain tissue with Zebrafish ATP binding cassette E1 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish ATP binding cassette E1 / Abce1 Antibody Tissue WB. Western blot analysis of Zebrafish ATP binding cassette E1 protein using Zebrafish ATP binding cassette E1 antibody and zebrafish embryo tissue lysate. Predicted molecular weight ~67 kDa.



Zebrafish ATP binding cassette E1 / Abce1 Antibody Eye Tissue IHC. Immunohistochemistry staining of FFPE zebrafish eye tissue with Zebrafish ATP binding cassette E1 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) ATP binding cassette E1 antibody detects Abce1, an essential and highly conserved ATP-binding cassette protein that regulates translation, ribosome recycling, antiviral responses, and growth signaling. Unlike many ABC family members, Abce1 does not function as a membrane transporter. Instead, it participates in fundamental cytosolic processes that influence protein synthesis and cellular stress adaptation. In zebrafish, the abce1 gene encodes a protein containing twin ATPase domains and a characteristic iron-sulfur cluster, enabling it to function as a molecular switch in multiple ribonucleoprotein pathways. Because translational control is critical for embryogenesis and tissue differentiation, Zebrafish ATP binding cassette E1 antibody reagents support research in ribosome dynamics, innate immunity, and developmental physiology.

Abce1 plays a central role in translation termination and ribosome recycling. Working with eukaryotic release factors, it promotes dissociation of post-termination ribosomal complexes and prepares 40S and 60S subunits for subsequent rounds of translation. This activity ensures efficient protein synthesis, particularly in fast-growing embryonic tissues. In zebrafish embryos, abce1 is expressed in proliferative regions such as the brain, somites, heart primordium, and developing endoderm, reflecting the high translational demand of these tissues.

Beyond its involvement in translation, Abce1 contributes to innate antiviral defense. In vertebrates, ABCE1 inhibits RNase L, a major effector of the interferon-induced antiviral pathway. Through this regulatory mechanism, Abce1 helps balance antiviral signaling with the need to preserve protein synthesis during stress responses. Zebrafish use conserved interferon pathways, making Abce1 function relevant for studies exploring viral susceptibility, immune development, and host defense mechanisms in aquatic models.

Abce1 also participates in ribosome biogenesis and assembly of translation initiation complexes. By regulating the availability and turnover of ribosomal subunits, Abce1 indirectly influences global translation rates. Its ATPase activity and iron-sulfur cluster allow it to cycle between active and inactive conformations, controlling its interactions with translation factors. In zebrafish, these mechanisms support developmental transitions that depend on rapid shifts in protein synthesis, such as gastrulation, neural tube formation, and organ budding.

At the molecular level, Abce1 acts as a multifunctional adapter for ribosomal proteins, translation factors, and RNA-binding partners. It localizes predominantly to the cytoplasm but enriches near ribosome-rich regions where translation is active. Its iron-sulfur cluster is sensitive to oxidative conditions, linking metabolic status with translational regulation. This redox-sensitive feature suggests that Abce1 may help coordinate protein synthesis with cellular stress states during embryonic development.

Loss or disruption of abce1 function affects ribosome cycling, reduces translation efficiency, and can lead to developmental arrest in vertebrate systems. In zebrafish, impaired Abce1 activity may compromise tissue growth, neural development, or stress tolerance due to reduced ribosomal output. Because translational control underpins differentiation, proliferation, and metabolic adaptation, Abce1 serves as a critical node connecting gene expression with developmental progression.

A Zebrafish ATP binding cassette E1 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining translation regulation, ribosome dynamics, and innate immune pathways.

This antibody targets Abce1 for studies involving protein synthesis, stress responses, and vertebrate embryonic development. NSJ Bioreagents provides the Zebrafish ATP binding cassette E1 antibody to support research in ribosome biology and developmental gene regulation.

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

Application Notes

Optimal dilution of the Zebrafish ATP binding cassette E1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish ABCE1 recombinant protein (amino acids Q141-D599) was used as the immunogen for the Zebrafish ATP binding cassette E1 antibody.

Storage

After reconstitution, the Zebrafish ATP binding cassette E1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.