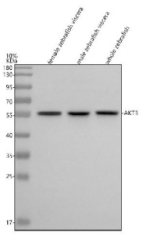
Zebrafish Akt3 Antibody (RZ1120)

Catalog No.	Formulation	Size
RZ1120	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	D9IL79
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Akt3 antibody is available for research use only.



Western blot analysis of Akt3 protein using Zebrafish Akt3 antibody and 1) female zebrafish viscera, 2) male zebrafish viscera and 3) whole zebrafish tissue lysate. Predicted molecular weight ~56 kDa.

Description

Zebrafish (Danio rerio) Akt3 antibody detects Akt3, a serine/threonine kinase that functions as a central regulator of cell survival, metabolism, growth, and neural development. Akt3 is one of three vertebrate Akt isoforms and is particularly enriched in neural tissues, where it contributes to brain patterning, neuronal differentiation, and synaptic maturation. In zebrafish, the akt3 gene encodes a kinase that shares strong homology with mammalian AKT3, maintaining conserved roles in PI3K-Akt signaling pathways that govern cellular responses to growth factors, nutrient availability, and extracellular cues. Because Akt3 integrates multiple developmental signals, Zebrafish Akt3 antibody reagents are widely used in studies examining neurodevelopment, cell signaling, and vertebrate growth control.

Akt3 expression in zebrafish is strongly associated with developing neural structures such as the forebrain, midbrain, and hindbrain, as well as emerging neuronal networks in the spinal cord. Its activity influences neuron survival, axonal growth, and circuit formation by modulating downstream targets involved in cytoskeletal dynamics, metabolic activity, and gene regulation. Akt3 is also linked to brain size determination in vertebrate models, with reduced Akt3 activity leading to microcephaly or impaired neural expansion. These functions underscore its importance in coordinating cell proliferation and survival within the rapidly developing nervous system.

Like other Akt isoforms, Akt3 is activated downstream of phosphoinositide 3-kinase (PI3K) signaling. Upon growth factor stimulation, phosphatidylinositol lipids recruit Akt3 to the plasma membrane, where it undergoes phosphorylation at key regulatory residues. Activated Akt3 then translocates to the cytoplasm and nucleus to regulate substrates controlling apoptosis inhibition, protein synthesis, and metabolic adaptation. In zebrafish, these mechanisms contribute broadly to tissue growth and differentiation, especially in organs that require precise integration of survival and metabolic programs.

Akt3 also participates in pathways governing energy homeostasis and mitochondrial function. It influences glucose metabolism, lipid synthesis, and oxidative capacity through downstream effectors such as mTOR, FoxO transcription factors, and GSK3 family kinases. During zebrafish development, these metabolic regulatory roles support rapid cell division, organ formation, and neural maturation. The ability of Akt3 to balance growth signals with stress responses also helps maintain developmental stability under fluctuating environmental conditions.

Subcellular localization of Akt3 varies depending on activation state, with distribution across the cytoplasm, nucleus, and plasma membrane. Its interactions include scaffold proteins, phosphoinositide-binding partners, and downstream kinases modulated by phosphorylation. Zebrafish provide a powerful system for imaging these dynamic signaling events in vivo, enabling researchers to track Akt3 pathway activity during neurogenesis and organogenesis.

A Zebrafish Akt3 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining PI3K-Akt signaling, neuronal survival, metabolic regulation, and developmental growth control. This antibody targets Akt3 for studies involving neural patterning, cell survival pathways, and vertebrate developmental biology. NSJ Bioreagents provides the Zebrafish Akt3 antibody to support research in signal transduction and developmental physiology.

Application Notes

Optimal dilution of the Zebrafish Akt3 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Akt3 recombinant protein (amino acids M104-L154) was used as the immunogen for the Zebrafish Akt3 antibody.

Storage

After reconstitution, the Zebrafish Akt3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.