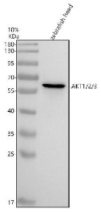
Zebrafish Akt Antibody / Isoforms 1 & 2 & 3 (RZ1064)

Catalog No.	Formulation	Size
RZ1064	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	Q802Y3
Applications	Western blot: 0.5-1 ug/ml
Limitations	This Zebrafish Akt antibody is available for research use only.



Zebrafish Akt Antibody WB. Western blot analysis of Akt1/2/3 protein using Akt antibody and zebrafish head tissue lysates. The predicted molecular weight of Akt1/2/3 is ~56 kDa.

Description

Zebrafish (Danio rerio) Akt antibody recognizes the serine/threonine kinases Akt1, Akt2, and Akt3, three closely related isoforms encoded by zebrafish akt1, akt2, and akt3. These kinases act as central regulators within the PI3K-Akt signaling pathway, integrating extracellular cues to control cell survival, metabolism, growth, proliferation, and stress adaptation. In Danio rerio embryos, Akt isoforms are expressed widely across proliferative and differentiating tissues, including developing brain, neural tube, somites, heart, vasculature, notochord, and endoderm-derived organs such as liver and pancreas. Subcellular localization includes cytoplasm, membrane-associated compartments, and nucleus, reflecting dynamic regulation through phosphorylation, membrane recruitment, and signaling complex formation.

Akt1, Akt2, and Akt3 collectively support fundamental processes during embryogenesis. Activation of Akt promotes cell survival by inhibiting pro-apoptotic factors and supporting DNA repair and metabolic resilience. In rapidly dividing zebrafish tissues, Akt activity helps maintain appropriate cell cycle progression and prevents premature apoptosis during morphogenesis. Each isoform contributes overlapping yet context-specific functions: Akt1 broadly regulates growth and survival, Akt2 influences metabolic programs, and Akt3 is especially important in neural tissue development. Together, they provide a coordinated signaling network that shapes embryonic patterning and tissue expansion.

Neural development relies heavily on Akt signaling. Developing neurons and neural progenitors depend on Akt-mediated survival cues, cytoskeletal remodeling, and metabolic adaptation. Akt3 shows prominent expression in the zebrafish brain, where it supports neuronal differentiation, axon extension, and synaptic maturation. Akt-dependent regulation of growth factor pathways, including those involving insulin-like signaling, further influences brain patterning and neural circuit formation.

Cardiac and vascular development also require Akt activity. In the forming heart, Akt regulates cardiomyocyte survival, contractile maturation, and chamber morphogenesis. PI3K-Akt signaling influences cardiac looping, myocardial growth, and responses to mechanical stress. In endothelial tissues, Akt supports angiogenic sprouting, lumen formation, and vascular stability by promoting endothelial survival and regulating cytoskeletal and adhesion dynamics. Loss of Akt activity can result in impaired cardiac output, abnormal vessel patterning, or reduced angiogenesis.

In muscle and somite development, Akt contributes to myogenic lineage progression, metabolic regulation, and maintenance of cytoskeletal architecture. By modulating glucose uptake, mitochondrial function, and protein synthesis, Akt supports formation of functional myotomes and influences early contractile readiness. Somitic development is particularly sensitive to disruptions in Akt signaling due to its role in integrating morphogen and growth factor cues.

Endoderm-derived organs also rely on isoform-specific Akt functions. In liver and pancreas, Akt regulates metabolic gene expression, growth, and stress-response signaling. Developing hepatocytes and endocrine progenitors require balanced Akt activity to support proliferation, differentiation, and metabolic specialization. Because these tissues face fluctuating metabolic demands, Akt-mediated control of glucose and lipid metabolism contributes significantly to organogenesis.

This Zebrafish Akt antibody is suitable for detecting Akt1, Akt2, and Akt3 in research focused on PI3K-Akt signaling, neural development, cardiac and vascular growth, muscle formation, and metabolic regulation in zebrafish. NSJ Bioreagents provides this reagent within its zebrafish and signal-transduction antibody collection.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents. For a microarray-validated AKT1 antibody supporting high-specificity detection, see our AKT1 antibody (clone AKT1/2552).

Application Notes

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

Immunogen

An E.coli-derived zebrafish Akt1/2/3 recombinant protein (amino acids E17-A474) was used as the immunogen for the Zebrafish Akt antibody.

Storage

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

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