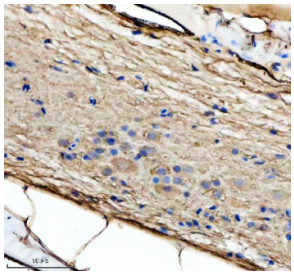
Zebrafish Bdnf Antibody / Brain-derived neurotrophic factor (RZ1177)

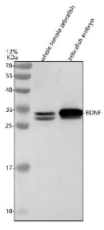
Catalog No.	Formulation	Size
RZ1177	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

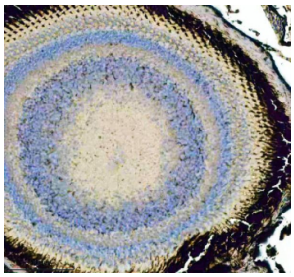
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	A0A8M1P735
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Bdnf antibody is available for research use only.



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



Western blot analysis of Bdnf protein using Zebrafish Bdnf antibody and 1) whole female zebrafish tissue lysates and 2) zebrafish embryo tissue lysates. Predicted molecular weight ~30 kDa.



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

Description

Zebrafish (Danio rerio) Bdnf antibody detects Bdnf, a key neurotrophin that supports neuronal survival, synaptic development, plasticity, and circuit refinement. Encoded by the bdnf gene, Brain-derived neurotrophic factor plays essential roles in shaping the nervous system during vertebrate development and throughout life. As a member of the neurotrophin family, Bdnf binds primarily to the TrkB receptor, activating signaling pathways that influence neuronal differentiation, axon growth, dendritic arborization, and activity-dependent synaptic remodeling. Because these processes are fundamental to the formation and maintenance of neural circuits, Zebrafish Bdnf antibody reagents support research in neurodevelopment, synaptic biology, sensory system maturation, and behavior.

Bdnf expression begins early in zebrafish embryogenesis and increases as neural structures mature. The protein is broadly expressed in the brain, spinal cord, sensory organs, and peripheral nervous system. Within the central nervous system, Bdnf influences neurogenesis, promotes neuronal survival, and contributes to the maturation of excitatory and inhibitory circuits. Activity-dependent transcription of bdnf is a hallmark of neural plasticity, enabling neurons to adjust connectivity in response to stimuli. This makes zebrafish a powerful model for studying Bdnf function in vivo, especially in sensory processing, motor coordination, and experience-driven circuit refinement.

In addition to its developmental roles, Bdnf regulates synaptic physiology. It enhances neurotransmitter release probability, stabilizes synaptic contacts, and modulates long-term potentiation and depression. These functions are conserved across vertebrates, and disruption of Bdnf signaling in zebrafish can impair learning-like behaviors, sensory responsiveness, and motor patterning. Because Bdnf affects both structural and functional aspects of synapses, it is central to studies examining how neuronal networks adapt during growth, injury, or environmental change.

Beyond the nervous system, Bdnf contributes to muscle development, metabolism, and cardiovascular function. Some zebrafish tissues outside the CNS exhibit Bdnf expression, suggesting broader roles in organogenesis, energy balance, or tissue maintenance. However, its most prominent and well-characterized functions remain in the brain and spinal cord, where it supports cell-type specification and circuit integration.

At the molecular level, Bdnf is produced as a precursor protein, proBDNF, which is cleaved intracellularly or extracellularly to generate mature Bdnf. These forms can activate distinct signaling pathways; mature Bdnf primarily engages TrkB to promote survival and growth, whereas proBDNF can bind p75 receptors and regulate pruning or apoptosis. The balance between these isoforms influences neuronal remodeling during zebrafish development. Subcellular distribution of Bdnf includes secretory vesicles, synaptic sites, and dendritic compartments that release Bdnf in an activity-dependent manner.

Bdnf signaling activates downstream cascades such as MAPK, PI3K-Akt, and PLC-gamma pathways, each controlling different aspects of neuronal physiology. Because these pathways are conserved in zebrafish, the organism provides an accessible platform for studying neurotrophic signaling in real time. Alterations in Bdnf expression or activity can lead to deficits in neural patterning, reduced neuron survival, or impaired sensory and motor function.

A Zebrafish Bdnf antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining neurotrophic signaling, synaptic plasticity, neuronal maturation, and developmental neurobiology. This antibody targets Brain-derived neurotrophic factor for studies involving neural circuit formation, neuronal survival, and

vertebrate brain development. NSJ Bioreagents provides the Zebrafish Bdnf antibody to support research in neurotrophin biology and CNS development.

Application Notes

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

Immunogen

E. coli-derived zebrafish Bdnf recombinant protein (amino acids A27-R278) was used as the immunogen for the Zebrafish Bdnf antibody.

Storage

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