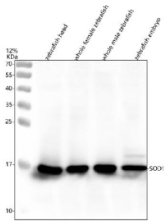
Zebrafish Sod1 Antibody / Superoxide dismutase 1 (RZ1311)

Catalog No.	Formulation	Size
RZ1311	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	O73872
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Sod1 antibody is available for research use only.



Western blot analysis of Sod1 protein using Zebrafish Sod1 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~16 kDa.

Description

Zebrafish Sod1 antibody targets Superoxide dismutase 1 (Sod1), a ubiquitously expressed cytosolic antioxidant enzyme that plays a central role in cellular defense against oxidative stress. In zebrafish, also known as Danio rerio, Sod1 catalyzes the dismutation of superoxide radicals into molecular oxygen and hydrogen peroxide, limiting oxidative damage generated during normal metabolic activity. The Sod1 protein localizes primarily to the cytoplasm, with additional presence reported in the nucleus and mitochondrial intermembrane space under specific physiological or stress-related conditions. Sod1 is a member of the copper-zinc superoxide dismutase family, characterized by a conserved beta-barrel structure that coordinates one copper and one zinc ion per monomer.

Functionally, Sod1 protects cellular macromolecules from oxidative injury and supports redox homeostasis across a wide range of tissues. In zebrafish embryos and larvae, Sod1 expression is detected early in development, reflecting the importance of antioxidant control during rapid cell proliferation and differentiation. Elevated expression has been reported in metabolically active tissues such as brain, skeletal muscle, liver, and heart, where reactive oxygen species production is closely linked to energy demand. A Zebrafish Sod1 antibody is useful for examining antioxidant regulation during development and tissue maintenance in Danio rerio.

Zebrafish Sod1 has been widely used as a model for studying oxidative stress biology due to the genetic conservation and experimental accessibility of zebrafish systems. Reduced Sod1 activity has been associated with increased sensitivity to oxidative insults, altered neuromuscular development, and disrupted stress-response signaling pathways. These features make Sod1 a relevant target for investigations into redox imbalance, cellular stress responses, and antioxidant defense mechanisms.

From a disease-relevance perspective, Sod1 is well known in mammals for its association with amyotrophic lateral sclerosis when mutated, and zebrafish Sod1 has been leveraged as a comparative model to explore conserved aspects of oxidative damage and neuronal vulnerability. Although zebrafish do not fully recapitulate all features of human neurodegenerative disease, conservation of Sod1 structure and function enables meaningful study of oxidative stress-related pathways. Sod1 also participates indirectly in redox-sensitive signaling cascades, including stress-activated kinase pathways and transcriptional regulation.

At the molecular level, zebrafish Sod1 is encoded by the sod1 gene and produces a protein of approximately 154 amino acids, consistent with vertebrate Sod1 proteins. The enzyme functions as a homodimer, and proper metal ion coordination is essential for catalytic activity and stability. Post-translational and redox-dependent changes can influence Sod1 conformation and interactions. A Zebrafish Sod1 antibody supports research focused on antioxidant defense, developmental biology, and redox-regulated cellular processes, with NSJ Bioreagents providing reagents intended for research applications.

Application Notes

Optimal dilution of the Zebrafish Sod1 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Sod1 recombinant protein (amino acids M1-Q154) was used as the immunogen for the Zebrafish Sod1 antibody.

Storage

After reconstitution, the Zebrafish Sod1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.