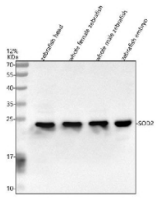
Zebrafish Sod2 Antibody / Superoxide dismutase 2 (RZ1312)

Catalog No.	Formulation	Size
RZ1312	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	Q6P980
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Sod2 antibody is available for research use only.



Western blot analysis of Sod2 protein using Zebrafish Sod2 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~25 kDa.

Description

Zebrafish Sod2 antibody targets Superoxide dismutase 2 (Sod2), a mitochondrial antioxidant enzyme that protects cells from oxidative damage generated during aerobic metabolism. In zebrafish, also known as Danio rerio, Sod2 functions as the primary mitochondrial superoxide scavenger, catalyzing the conversion of superoxide radicals into hydrogen peroxide and molecular oxygen. The Sod2 protein localizes predominantly to the mitochondrial matrix and belongs to the manganese-dependent superoxide dismutase family, distinguishing it from cytosolic copper-zinc SOD enzymes by both metal cofactor usage and subcellular localization.

Functionally, Sod2 safeguards mitochondrial DNA, lipids, and respiratory chain proteins from oxidative injury. In zebrafish, Sod2 expression is detected early during embryogenesis and remains broadly expressed throughout development, reflecting the high metabolic demands of growth and organ formation. Increased expression has been observed in tissues with high mitochondrial activity, including brain, heart, skeletal muscle, and liver. A Zebrafish Sod2 antibody supports studies examining mitochondrial antioxidant defense and redox regulation in Danio rerio.

Zebrafish models are widely used to investigate mitochondrial biology and oxidative stress due to their genetic conservation and experimental accessibility. Reduced Sod2 activity has been associated with mitochondrial dysfunction, increased oxidative sensitivity, developmental abnormalities, and impaired neuromuscular performance. These observations underscore the essential role of Sod2 in maintaining mitochondrial integrity under both physiological and stress conditions. A Zebrafish Sod2 antibody enables analysis of Sod2 expression patterns and regulation in developmental and metabolic studies.

From a disease-relevance perspective, Sod2 is extensively studied in mammals for its involvement in cardiovascular disease, cancer metabolism, and neurodegenerative disorders associated with mitochondrial oxidative damage. Zebrafish Sod2 provides a conserved comparative system for exploring how mitochondrial reactive oxygen species contribute to cellular dysfunction and disease-related pathways. Sod2 influences redox-sensitive signaling cascades, apoptosis regulation, and cellular adaptation to metabolic stress.

At the molecular level, zebrafish Sod2 is encoded by the sod2 gene and produces a protein of approximately 222 amino acids following mitochondrial targeting sequence processing, consistent with other vertebrate Sod2 proteins. The enzyme functions as a homotetramer within the mitochondrial matrix, coordinating manganese ions at the active site to support catalytic activity. Regulation of Sod2 expression and stability occurs in response to oxidative stress, metabolic state, and developmental cues. A Zebrafish Sod2 antibody supports research focused on mitochondrial function, oxidative stress regulation, and redox biology, with NSJ Bioreagents providing reagents intended for research applications.

Application Notes

Optimal dilution of the Zebrafish Sod2 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Sod2 recombinant protein (amino acids M1-K224) was used as the immunogen for the Zebrafish Sod2 antibody.

Storage

After reconstitution, the Zebrafish Sod2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.