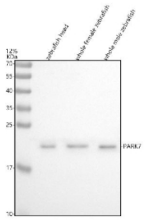
Zebrafish DJ-1 Antibody / PARK7 (RZ1043)

Catalog No.	Formulation	Size
RZ1043	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	Q5XJ36
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish DJ-1 antibody is available for research use only.



Western blot analysis of DJ-1/PARK7 protein using Zebrafish DJ-1 antibody and 1) zebrafish head, 2) whole female zebrafish and 3) whole male zebrafish tissue lysate. Expected molecular weight ~20 kDa.

Description

Zebrafish (Danio rerio) DJ-1 antibody recognizes PARK7, a conserved protein encoded by the zebrafish park7 gene and best known for its roles in oxidative stress protection, redox regulation, mitochondrial homeostasis, and cellular survival pathways. DJ-1 functions as a stress-responsive chaperone-like protein that undergoes redox-dependent conformational changes, enabling it to detoxify reactive oxygen species, stabilize mitochondrial function, and regulate gene expression programs shaped by cellular redox status. In Danio rerio, PARK7 is expressed ubiquitously during early embryogenesis with strong enrichment in neural tissues, developing musculature, heart, somites, and endoderm-derived organs such as liver and pancreas. Subcellular localization includes cytosol, mitochondria, and nucleus, reflecting PARK7's multifaceted

regulatory roles.

PARK7 contributes significantly to neural development. As zebrafish embryos undergo rapid neurogenesis, DJ-1 helps protect neural progenitors and differentiating neurons from oxidative insults generated by mitochondrial activity and metabolic transitions. PARK7 regulates transcription factors, antioxidant gene networks, and mitochondrial proteins that guide neuronal growth, axon formation, and survival. Because neural tissues have high metabolic demand, PARK7 activity ensures that developing neurons maintain redox balance necessary for proper brain and spinal cord patterning.

The protein also plays crucial roles in mitochondrial quality control. DJ-1 supports mitochondrial membrane potential maintenance, stabilizes respiratory chain components, and limits accumulation of damaged mitochondrial proteins. In zebrafish cardiac and skeletal muscle tissues, PARK7 contributes to mitochondrial resilience during early contractile development. These roles align with broader metabolic regulation: PARK7 interacts with glycolytic and oxidative phosphorylation pathways, enabling metabolic flexibility during rapid developmental transitions. Disruption of park7 can lead to increased ROS accumulation, mitochondrial fragmentation, reduced ATP output, and abnormal development across metabolically demanding tissues.

PARK7 additionally influences cellular stress-response signaling. It modulates transcriptional programs controlled by NF-kappaB, antioxidant response elements, and stress-induced chaperone networks. In zebrafish embryos exposed to environmental or metabolic stressors, DJ-1 activity supports survival, prevents apoptosis, and promotes restoration of redox and metabolic homeostasis. This protective function is especially critical during periods of rapid growth when embryos rely on balanced oxidative phosphorylation and antioxidant defenses.

Beyond its developmental roles, PARK7 is associated with human neurological disease. Mutations in human PARK7 cause early-onset autosomal recessive Parkinson's disease. Zebrafish models carrying park7 loss-of-function alleles or expressing disease-associated variants show dopaminergic neuron vulnerability, mitochondrial deficits, locomotor impairments, and oxidative stress sensitivity. These models provide an important vertebrate system for studying conserved mechanisms of neuroprotection, mitochondrial maintenance, and redox signaling that underlie neurodegeneration.

This Zebrafish DJ-1 antibody is suitable for detecting PARK7 in research focused on redox biology, oxidative stress responses, mitochondrial function, neural development, metabolic regulation, and neurodegenerative disease modeling in zebrafish. It supports studies examining antioxidant defense pathways, stress-responsive transcriptional regulation, and developmental phenotypes resulting from impaired PARK7 activity. NSJ Bioreagents provides this reagent within its zebrafish and stress-regulation antibody collection.

Application Notes

Optimal dilution of the Zebrafish DJ-1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish DJ-1/PARK7 recombinant protein (amino acids M1-D189) was used as the immunogen for the Zebrafish DJ-1 antibody.

Storage

After reconstitution, the Zebrafish DJ-1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.