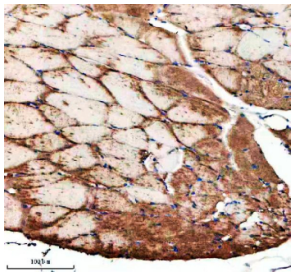
Zebrafish Ide Antibody / Insulin degrading enzyme (RZ1014)

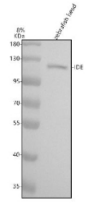
Catalog No.	Formulation	Size
RZ1014	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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	A0A0R4IL71
Localization	Cytoplasm
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Ide antibody is available for research use only.



Zebrafish Ide Antibody Muscle IHC. Immunohistochemical analysis of Ide protein using Zebrafish Ide antibody and paraffin-embedded zebrafish muscle tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Ide Antibody WB. Western blot analysis of Ide protein using Zebrafish Ide antibody and zebrafish head tissue lysate. The predicted molecular weight of Ide is 118 kDa.

Description

Zebrafish (Danio rerio) Ide antibody recognizes Insulin degrading enzyme, a conserved zinc metalloprotease encoded by the zebrafish ide gene on chromosome 18. Insulin degrading enzyme (IDE) belongs to the M16 family of metalloproteases and is known for its broad substrate range, which includes insulin, insulin-like peptides, glucagon, amyloidogenic proteins, and various bioactive peptides. In Danio rerio, Ide is expressed during early embryogenesis and in metabolically active tissues such as brain, liver, muscle, pancreas, and developing endodermal organs. The protein localizes to the cytosol, peroxisomes, endosomes, and selected membrane-associated compartments where it participates in peptide turnover and regulatory signaling.

Insulin degrading enzyme contributes to glucose homeostasis, neuropeptide regulation, and degradation of signaling peptides that influence growth and developmental timing. In zebrafish, Ide assists in shaping metabolic pathways that support rapid embryonic growth and organ formation. Its proteolytic activity affects circulating peptide hormone levels, influencing pathways such as insulin signaling, energy balance, and nutrient sensing. Because zebrafish embryos rely on dynamic shifts in peptide turnover to coordinate early development, Ide is essential for maintaining proper peptide signaling gradients during tissue differentiation.

Regulation of Ide function impacts several developmental processes, including pancreatic morphogenesis, neuronal maturation, and muscle differentiation. Studies in vertebrate systems show that altered IDE activity can influence insulin sensitivity, mitochondrial metabolism, and oxidative stress responses. In zebrafish, Ide is enriched in regions associated with neuroendocrine control, suggesting roles in peptide signaling within developing neural circuits. Ide also contributes to proteostasis by degrading misfolded or aggregation-prone peptides, linking its function to neurodevelopmental stability and stress resilience.

Dysregulation of insulin degrading enzyme has been implicated in metabolic disorders, neurodegeneration, and age-related dysfunction in vertebrates. While zebrafish do not develop the same adult-onset diseases seen in mammals, Ide knockdown or inhibition models demonstrate impaired glucose handling, abnormal neuronal patterning, and delayed tissue maturation. Because zebrafish embryos provide real-time access to metabolic changes, Ide has become a valuable marker for studying early metabolic regulation, insulin pathway dynamics, and peptide turnover during embryogenesis. Its conserved proteolytic mechanisms also make it relevant for modeling aspects of human peptide clearance disorders.

At the molecular level, Insulin degrading enzyme forms large homodimeric or multimeric complexes that contribute to substrate selectivity and catalytic efficiency. Isoform variation in zebrafish may reflect differential developmental regulation or tissue-specific expression. Ide interacts with peptide substrates through conformational changes that enable binding to both structured hormones and partially unfolded peptides. During development, Ide expression increases in tissues with high metabolic activity and in regions undergoing rapid cellular remodeling that require tight control of peptide signaling.

This Zebrafish Ide antibody is suitable for detecting Insulin degrading enzyme in research focused on metabolic regulation, peptide hormone degradation, neuroendocrine development, proteostasis, and stress response pathways in zebrafish. It supports studies examining glucose-related signaling, peptide turnover, developmental metabolism, and the impacts of altered proteolytic activity on early embryonic patterning. NSJ Bioreagents offers this reagent within its zebrafish and metabolic biology antibody collection.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents.

Application Notes

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

Immunogen

An E.coli-derived zebrafish Ide recombinant protein (amino acids F464-K735) was used as the immunogen for the

Zebrafish Ide antibody.

Storage

After reconstitution, the Zebrafish Ide 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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