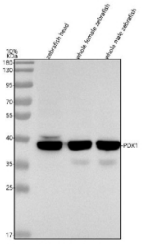
Zebrafish Pdx1 Antibody / Pancreas/duodenum homeobox protein 1 (RZ1267)

Catalog No.	Formulation	Size
RZ1267	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	Q6DC85
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Pdx1 antibody is available for research use only.



Western blot analysis of Pdx1 protein using Zebrafish Pdx1 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish tissue lysate. Predicted molecular weight ~28 kDa but may be observed at higher molecular weights due to post-translational modifications.

Description

The Zebrafish Pdx1 antibody targets Pdx1, also known as Pancreas/duodenum homeobox protein 1, a nuclear transcription factor essential for pancreatic specification, endocrine cell differentiation, beta cell maturation, and digestive organ development in Danio rerio. Zebrafish, also known as Danio rerio, express pdx1 early in the endoderm, where it marks progenitor cells destined to form the pancreas and portions of the duodenum. Pdx1 localizes to the nucleus, binding regulatory DNA elements that control genes required for pancreatic bud formation, insulin expression, and overall endocrine and exocrine differentiation.

Pdx1 belongs to the ParaHox family of homeodomain transcription factors and contains a conserved DNA-binding homeodomain along with activation regions that regulate organ-specific gene expression. In zebrafish embryos, pdx1 expression initially appears in the dorsal pancreatic bud and later expands to maturing endocrine cells and exocrine acinar domains. A Zebrafish Pdx1 antibody is suitable for detecting nuclear expression in pancreatic progenitors, developing islet cells, and gastrointestinal tissues undergoing endodermal patterning and morphogenesis.

Functionally, Pdx1 is a master regulator of pancreas formation. It governs the transition of endodermal progenitors into pancreatic tissue and activates downstream factors involved in endocrine lineage determination, including insulin, nkx2.2a, pax6, and neurod1. In zebrafish, loss of pdx1 severely disrupts beta cell development, reduces insulin production, impairs exocrine pancreas formation, and alters duodenal differentiation. Pdx1 also influences glucose metabolism pathways and participates in maintaining mature beta cell identity, making it central to studies of diabetes, islet regeneration, and metabolic regulation.

Structurally, zebrafish Pdx1 contains an N-terminal transactivation domain, a homeodomain for DNA binding, and C-terminal regions that interact with chromatin remodeling proteins. These features allow Pdx1 to integrate developmental signals with transcriptional programs that shape pancreatic architecture. Zebrafish pdx1 maps to chromosome 13, regulated by endodermal cues including Fgf, Bmp, and Wnt pathways. Co-localization studies detect Pdx1 in early pancreatic buds, maturing islet clusters, and regions of the developing gut, often overlapping with insulin-positive beta cells, endocrine progenitors, and digestive organ markers.

A Zebrafish Pdx1 antibody is suitable for detecting Pdx1 in studies focused on pancreas development, endocrine differentiation, beta cell maturation, metabolic regulation, and endodermal patterning in Danio rerio. Its nuclear localization provides precise mapping of pancreatic progenitors and endocrine lineage transitions, supporting investigations into diabetic phenotypes, regenerative capacity, and genetic or environmental perturbations affecting islet formation. Because zebrafish provide robust models for pancreatic biology and metabolic disease, Pdx1 is widely used to study endocrine development and functional maturation. This antibody is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Pdx1 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Pdx1 recombinant protein (amino acids M1-S246) was used as the immunogen for the Zebrafish Pdx1 antibody.

Storage

After reconstitution, the Zebrafish Pdx1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.