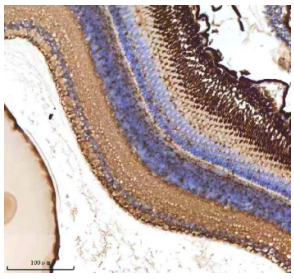
Zebrafish Atoh7 Antibody / Lakritz (RZ1204)

Catalog No.	Formulation	Size
RZ1204	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
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q8AW52
Localization	Localized to the Nucleoplasm, Flagellar centriole In addition localized to the Cytosol, Mid piece
Applications	Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Atoh7 antibody is available for research use only.



IHC staining of zebrafish Atoh7 protein using Zebrafish Atoh7 antibody, HRP-labeled secondary and DAB substrate. Atoh7 was detected in a paraffin-embedded section of zebrafish eye tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

The Zebrafish Atoh7 antibody targets Atoh7, a basic helix-loop-helix transcription factor essential for retinal ganglion cell specification and early neurogenesis in Danio rerio. Zebrafish, also known as Danio rerio, express atoh7 under the well-established name Lakritz, a mutation originally identified for its profound loss of retinal ganglion cells. Atoh7 is a nuclear protein containing a conserved bHLH domain that mediates E-box DNA binding and dimerization with helix-loop-helix partners. Its expression appears early in retinal progenitors, where it initiates genetic programs that guide the formation of retinal ganglion cells, optic nerve development, and early visual system assembly.

Atoh7 belongs to the achaete-scute family of proneural transcription factors, acting upstream of factors that mediate neuronal differentiation and axon guidance. In zebrafish embryos, atoh7 expression arises prominently in the developing retina during the neurogenic wave that begins at the ventral nasal patch and expands across the retinal neuroepithelium. A Zebrafish Atoh7 antibody is suitable for examining nuclear expression patterns during retinal lineage transitions, early neuronal differentiation, and optic nerve formation across embryonic and larval stages.

Atoh7 regulates multiple transcriptional networks that drive progenitor cells toward retinal ganglion cell fate. It activates downstream genes involved in cell cycle exit, axonogenesis, and RGC identity, including regulators such as Brn3 family transcription factors, Isl1, and other early neuronal determinants. Atoh7 also interfaces with Notch-regulated lateral inhibition mechanisms, ensuring that only a subset of retinal progenitor cells commits to the ganglion cell lineage at a given time. These interactions position Atoh7 as a central control point in establishing the earliest-born retinal neurons and coordinating the onset of visual system connectivity.

Structurally, Atoh7 contains the bHLH domain required for heterodimerization with E-protein partners and for binding cis-regulatory elements controlling neurogenic genes. Zebrafish atoh7 maps to chromosome 21, and its regulatory landscape is shaped by enhancers that respond to neuroepithelial positional cues, contributing to its sharply defined spatial expression. Co-localization studies often identify Atoh7 within populations marked by early neuronal indicators such as HuC/D, as well as in progenitor zones expressing Sox2. Atoh7 expression precedes and predicts retinal ganglion cell genesis, making it a reliable marker for the earliest stages of retinal neuronal differentiation.

A Zebrafish Atoh7 antibody is suitable for detecting Atoh7 in developmental studies focused on retinal neurogenesis, ganglion cell specification, optic nerve formation, and lineage diversification in Danio rerio. Retinal patterning depends on Atoh7Ã¢Â€Â™s ability to promote differentiation and coordinate axonal outgrowth toward midline structures. Because atoh7 mutants (lakritz) lack RGCs and show severe defects in optic nerve development, this transcription factor remains a cornerstone in research exploring genetic control of retinal development. A Zebrafish Atoh7 antibody provides a clear nuclear readout of proneural activity during early eye morphogenesis, enabling detailed analysis of transcriptional hierarchies, neuronal commitment, and the assembly of early visual pathways, and this reagent is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Atoh7 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Atoh7 recombinant protein (amino acids M1-L134) was used as the immunogen for the Zebrafish Atoh7 antibody.

Storage

After reconstitution, the Zebrafish Atoh7 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.