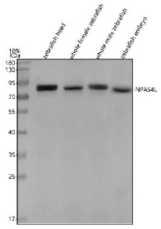
Zebrafish Npas4l Antibody / Cloche / Neuronal PAS domain-containing protein 4-like (RZ1252)

Catalog No.	Formulation	Size
RZ1252	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	P0DOC7
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Npas4l antibody is available for research use only.



Western blot analysis of Npas4l protein using Zebrafish Npas4l antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~69 kDa.

Description

The Zebrafish Npas4l antibody targets Npas4l, also known as Cloche or Neuronal PAS domain-containing protein 4-like, a bHLH-PAS transcription factor essential for endothelial and hematopoietic lineage specification in Danio rerio. Zebrafish, also known as Danio rerio, express npas4l very early in development, where it functions as one of the most upstream regulators of vascular and blood formation. Unlike most endothelial and hematopoietic genes that require existing precursors, Npas4l acts at the onset of mesodermal patterning to specify hemangioblast-like progenitors. As a nuclear transcription factor, Npas4l controls gene networks that determine endothelial identity, hematopoietic potential, and dorsal lateral plate mesoderm patterning.

Npas4l belongs to the basic helix-loop-helix Per-Arnt-Sim (bHLH-PAS) family, a group of transcription factors that regulate cell fate decisions and environmental-response pathways. In zebrafish embryos, npas4l expression is observed in lateral plate mesoderm before vascular precursors emerge. A Zebrafish Npas4l antibody is suitable for research applications examining nuclear localization in nascent hemangioblast territories, early endothelial progenitors, and cells undergoing vascular and hematopoietic induction.

Functionally, Npas4l is required for the formation of nearly all endothelial and blood cell lineages. It activates transcription factors including etv2, tal1/scl, fli1a, and gata2a, positioning it at the top of the vascular and hematopoietic hierarchy. Loss of npas4l produces the classic cloche phenotype, characterized by a near absence of endothelial cells, severe vascular defects, and failure to generate primitive hematopoietic cells. Because Npas4l functions upstream of etv2 and scl, two master regulators of the vascular and hematopoietic programs, it is widely studied as a model for understanding how endothelial and blood lineages are specified during early vertebrate development.

Structurally, zebrafish Npas4l contains an N-terminal bHLH domain required for DNA binding and heterodimerization, followed by PAS-A and PAS-B domains that facilitate interactions with co-factors and regulate transcriptional activity. These domains allow Npas4l to integrate signaling inputs with lineage-determining transcriptional outputs. Zebrafish npas4l maps to chromosome 14, and its transcription is regulated by early mesodermal cues including Nodal and BMP signaling. Co-localization and expression studies show Npas4l in hemangioblast regions of the lateral plate mesoderm, overlapping with pre-endothelial and hematopoietic markers such as etv2, tal1, and lmo2.

A Zebrafish Npas4l antibody is suitable for detecting Npas4l in studies focused on vascular development, hematopoietic lineage emergence, hemangioblast specification, and mesodermal patterning in Danio rerio. Its nuclear localization allows researchers to map early progenitor territories, evaluate developmental mutants affecting blood and vessel formation, and investigate the transcriptional hierarchies that guide endothelial and hematopoietic fate. Because npas4l is the earliest known determinant of the hemangioblast-like lineage in zebrafish, it is widely used to study lineage bifurcation, angioblast migration, and the molecular basis of vascular and hematopoietic defects. This antibody is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Npas4l antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Npas4l recombinant protein (amino acids Q94-I647) was used as the immunogen for the Zebrafish Npas4l antibody.

Storage

After reconstitution, the Zebrafish Npas4l antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.