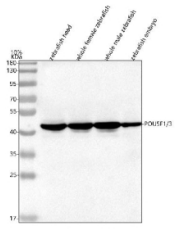
Zebrafish Pou5f1 Antibody / Pou5f3 (RZ1275)

Catalog No.	Formulation	Size
RZ1275	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	Q90270, A0A8M2B807
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Pou5f1 antibody is available for research use only.



Western blot analysis of Pou5f1/3 protein using Zebrafish Pou5f1 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~51 kDa.

Description

Pou5f1 (POU domain, class 5, transcription factor 1), also known as Oct4, is a critical transcription factor that plays a central role in maintaining pluripotency and self-renewal in embryonic stem cells. It regulates a network of genes that control cell fate determination, stem cell maintenance, and differentiation during early development. As a member of the POU family of transcription factors, Pou5f1 binds to specific DNA sequences to modulate gene expression. It is essential for the regulation of pluripotent stem cells and for ensuring proper embryonic development in many organisms, including zebrafish.

In zebrafish, Pou5f1 is an ortholog of the human POU5F1 gene (also known as Oct4). The zebrafish and human versions

of Pou5f1 share high sequence homology, particularly in their POU domain, which is the functional region responsible for DNA binding and transcriptional regulation. This conservation makes zebrafish a suitable model for studying stem cell pluripotency, embryogenesis, and developmental processes. Pou5f1 is expressed during early stages of embryonic development, where it plays a key role in maintaining stem cell populations and preventing premature differentiation.

Zebrafish Pou5f1 has isoforms, which may have distinct functions or expression patterns depending on the stage of development or tissue type. These isoforms enable fine-tuned regulation of transcription, particularly in early development, ensuring that the pluripotent state of embryonic cells is maintained while allowing differentiation when necessary. The diversity in isoforms is important for the regulation of gene networks and cellular behaviors during embryonic patterning and organogenesis.

In addition to its role as an essential transcription factor in early development, Pou5f1 is related to the Pou5f3 protein in zebrafish. While both proteins belong to the same POU family of transcription factors, they have distinct but overlapping roles in development. Pou5f3, like Pou5f1, is involved in early developmental stages and stem cell regulation. However, Pou5f3 has been shown to play a specific role in the development of the nervous system and neuronal differentiation, whereas Pou5f1 is more broadly involved in the regulation of pluripotency and self-renewal across multiple cell types. Both proteins share sequence similarity in their POU domain but diverge in their tissue-specific functions and regulatory roles during development.

Application Notes

Optimal dilution of the Zebrafish Pou5f1 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Pou5f1 recombinant protein (amino acids M1-S472) was used as the immunogen for the Zebrafish Pou5f1 antibody. This antibody will detect both Pou5f1 and Pou5f3.

Storage

After reconstitution, the Zebrafish Pou5f1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.