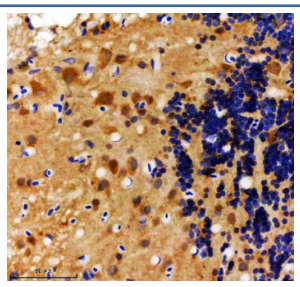
Zebrafish Hs2st1 Antibody / Hs2st1a / Hs2st1b (RZ1137)

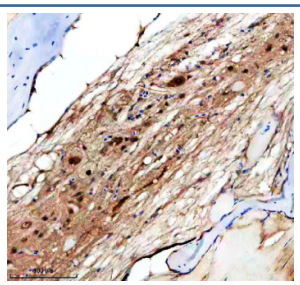
Catalog No.	Formulation	Size
RZ1137	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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	A1L1P8, F1QLG4
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Hs2st1 antibody is available for research use only.



Immunohistochemical analysis of Hs2st1a/b protein using Zebrafish Hs2st1 antibody and paraffin-embedded zebrafish brain tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical analysis of Hs2st1a/b protein using Zebrafish Hs2st1 antibody and paraffin-embedded zebrafish spinal cord tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Hs2st1 antibody detects Hs2st1, a heparan sulfate 2-O-sulfotransferase that catalyzes a key modification step in the biosynthesis of heparan sulfate glycosaminoglycans. In zebrafish, this enzymatic function is encoded by two paralogs, hs2st1a and hs2st1b, which together contribute to the sulfation patterns that define how heparan sulfate interacts with growth factors, morphogens, extracellular matrix components, and cell-surface receptors. Because the sulfation code of heparan sulfate is critical for regulating cell communication during development, Zebrafish Hs2st1 antibody reagents are widely used in studies of tissue patterning, morphogenesis, and extracellular matrix biology.

Hs2st1 modifies the 2-O position of uronic acid residues within heparan sulfate chains. These chemical modifications shape the binding affinities of heparan sulfate for signaling molecules including FGF, Wnt, Hedgehog, BMP, and chemokines. In zebrafish embryos, the combined activities of Hs2st1a and Hs2st1b help establish spatially distinct sulfation patterns that enable tissues to respond appropriately to morphogen gradients. Disruption of hs2st1 function alters gradient interpretation, leading to defects in axis formation, organ positioning, and neurodevelopment.

During early zebrafish development, Hs2st1a and Hs2st1b display overlapping but distinct expression domains. Their activity influences multiple processes including brain regionalization, vascular patterning, somite organization, and fin development. Proper 2-O-sulfation is essential for stabilizing ligand-receptor interactions and modulating the rate at which signaling molecules diffuse through the extracellular matrix. This regulatory capacity allows Hs2st1 to fine-tune the range, intensity, and outcome of developmental signaling events.

Heparan sulfate modifications governed by Hs2st1 also impact cell migration, axon guidance, and extracellular matrix assembly. In zebrafish neural development, 2-O-sulfation contributes to the formation of guidance cues that steer commissural and motor axons. Altered Hs2st1 activity can disrupt neuronal pathfinding and affect the formation of functional neural circuits. In addition, Hs2st1 plays roles in angiogenesis by modifying endothelial heparan sulfate, influencing both vessel branching and stability.

At the biochemical level, Hs2st1 localizes to the Golgi apparatus, where it interfaces with other glycosyltransferases and sulfotransferases involved in heparan sulfate chain assembly. Hs2st1a and Hs2st1b collaborate with these enzymes to generate tissue-specific heparan sulfate structures that differ in sulfation pattern, length, and charge distribution. These structural differences underlie the versatility of heparan sulfate as a regulatory molecule during development. Zebrafish provide a powerful model for studying this regulation, as their transparent embryos allow direct imaging of morphological changes associated with altered extracellular matrix composition.

In vertebrate systems, the loss of Hs2st1 function has been linked to defects in organogenesis, including kidney formation, limb development, and neural differentiation. Zebrafish exhibit comparable phenotypes when hs2st1a or hs2st1b expression is disrupted, reinforcing the evolutionary conservation of this sulfation pathway.

A Zebrafish Hs2st1 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining extracellular matrix composition, morphogen gradient formation, and tissue patterning. This antibody targets Hs2st1 for studies involving heparan sulfate biosynthesis, developmental signaling, and vertebrate morphogenesis. NSJ Bioreagents provides the Zebrafish Hs2st1 antibody to support research in extracellular matrix biology and developmental regulation.

Application Notes

Optimal dilution of the Zebrafish Hs2st1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Hs2st1a/b recombinant protein (amino acids E68-N354) was used as the immunogen for the Zebrafish Hs2st1 antibody. This antibody will detect both the a and b isoforms.

Storage

After reconstitution, the Zebrafish Hs2st1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.