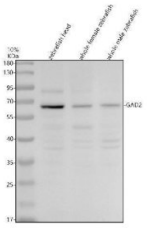
Zebrafish GAD65 Antibody / GAD2 Antibody (RZ1356)

Catalog No.	Formulation	Size
RZ1356	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Buffer	Lyophilized from a buffered saline solution containing 2% trehalose. Reconstitute with 0.2 mL distilled water to yield a final antibody concentration of 500 ug/ml.
UniProt	F1R9E8
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish GAD65 Antibody / GAD2 Antibody is available for research use only.

Zebrafish GAD65 / GAD2 Antibody Eye IHC. Immunohistochemistry staining of FFPE zebrafish eye tissue using Zebrafish GAD65 Antibody demonstrates prominent HRP-DAB brown staining within retinal cell layers associated with neuronal signaling and visual processing. The staining pattern is consistent with expression of Glutamate Decarboxylase 2 (GAD2), also known as GAD65, a key enzyme responsible for synthesis of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA). Strong retinal staining is consistent with the established role of GABAergic neurons in regulating visual signal transmission, retinal circuitry, and inhibitory neurotransmission within the vertebrate eye. Heat mediated antigen retrieval was performed in EDTA buffer. Primary antibody was incubated overnight at 4Â°C followed by detection using a peroxidase-conjugated goat anti-rabbit secondary antibody and DAB chromogen.



Zebrafish GAD65 / GAD2 Antibody Neurotransmitter Synthesis WB. Western blot analysis of zebrafish head tissue, whole female zebrafish, and whole male zebrafish lysates using Zebrafish GAD65 Antibody demonstrates a prominent immunoreactive band at approximately 65 kDa, consistent with the predicted molecular weight of Glutamate Decarboxylase 2 (GAD2), also known as GAD65. GAD65 is a key enzyme responsible for the synthesis of gamma-aminobutyric acid (GABA), the principal inhibitory neurotransmitter in the vertebrate nervous system. The observed band is detected across multiple zebrafish tissue preparations, consistent with the widespread importance of GABAergic signaling in neural function and neurotransmitter regulation. Minor lower-intensity bands are also present and may represent antibody-reactive species, alternatively processed forms, or non-specific background reactivity. Electrophoresis was performed on a 10% SDS-PAGE gel under reducing conditions followed by transfer to a nitrocellulose membrane. Signal was detected using an HRP-conjugated secondary antibody and enhanced chemiluminescent substrate.

Description

Zebrafish GAD65 Antibody / GAD2 Antibody recognizes Glutamate Decarboxylase 2 (GAD2), commonly known as GAD65, an enzyme responsible for catalyzing the conversion of glutamate to gamma-aminobutyric acid (GABA), the principal inhibitory neurotransmitter in the vertebrate nervous system. GAD65 plays a central role in regulating inhibitory neurotransmission and maintaining the balance between excitatory and inhibitory neural signaling. Through its involvement in GABA synthesis, GAD65 contributes to neuronal communication, neural circuit formation, sensory processing, and nervous system function. The highly conserved nature of GABAergic signaling pathways has established zebrafish as an important vertebrate model for studying GAD65 expression and inhibitory neurotransmitter biology.

GABA functions as a major inhibitory neurotransmitter throughout the central nervous system and is essential for controlling neuronal excitability and network activity. In zebrafish, GAD65 expression is associated with GABAergic neuronal populations that regulate motor function, sensory integration, behavioral responses, and neural development. Researchers frequently evaluate GAD65 expression when studying neural circuitry, brain development, neurotransmitter signaling, and neurophysiology. Because GAD65 serves as a widely accepted marker of GABA-producing neurons, it is commonly used to identify inhibitory neuronal populations in developmental and neuroscience research.

In addition to its neurological importance, GAD65 has attracted significant interest in immunology and endocrine research because of its expression in pancreatic beta cells and its association with autoimmune responses. Studies of GAD65 continue to provide valuable insight into mechanisms governing neurotransmitter production, neuronal differentiation, and neuroendocrine regulation. As a result, GAD65 remains one of the most widely studied markers of inhibitory neurotransmission across vertebrate systems.

Zebrafish provide unique advantages for investigating GABAergic signaling because neural development and neuronal activity can be visualized in vivo throughout embryonic and adult stages. Researchers frequently monitor GAD65 expression during studies of nervous system development, regeneration, neurotoxicity, behavioral biology, and neural circuit organization. Because many neurotransmitter pathways are highly conserved between zebrafish and mammals, findings generated using zebrafish models often provide valuable insight into vertebrate nervous system function.

At NSJ Bioreagents, we provide highly validated antibodies for neuroscience, developmental biology, and zebrafish research. Zebrafish GAD65 Antibody / GAD2 Antibody targets a key enzyme required for GABA synthesis and inhibitory neurotransmitter signaling. GAD65 expression is widely studied in the context of GABAergic neurons, neural development, neurotransmitter metabolism, inhibitory signaling pathways, and nervous system organization. Continued investigation of this important enzyme is expanding our understanding of the molecular mechanisms that regulate neural communication and vertebrate neurobiology.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents.

Application Notes

The optimal working dilution of the Zebrafish GAD65 Antibody / GAD2 Antibody should be determined empirically by the investigator.

Immunogen

An E.coli-derived Zebrafish GAD65/GAD2 recombinant protein (amino acids D132-Y538) was used as the immunogen for the Zebrafish GAD65 Antibody.

Storage

After reconstitution, the Zebrafish GAD65 Antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Zebrafish GAD2 Antibody, Zebrafish Glutamate Decarboxylase 2 Antibody, Zebrafish Gamma-Aminobutyric Acid Synthesis Enzyme Antibody, Zebrafish GABA Synthesis Enzyme Antibody, Zebrafish Inhibitory Neurotransmitter Marker Antibody, Zebrafish Neural Signaling Enzyme Antibody