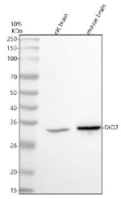
DIO2 Antibody / Type II iodothyronine deiodinase (FY12392)

Catalog No.	Formulation	Size
FY12392	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q92813
Applications	Western Blot : 0.25-0.5ug/ml
Limitations	This DIO2 antibody is available for research use only.



Western blot analysis of DIO2 using anti-DIO2 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: rat brain tissue lysates, Lane 2: mouse brain tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-DIO2 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. The expected molecular weight of DIO2 is ~31 kDa.

Description

The DIO2 antibody targets Type II iodothyronine deiodinase, an enzyme encoded by the DIO2 gene that catalyzes the conversion of thyroxine (T4) to the active thyroid hormone triiodothyronine (T3). Type II iodothyronine deiodinase plays a central role in maintaining local and systemic thyroid hormone homeostasis by regulating intracellular T3 availability. This selenoenzyme is expressed in the brain, pituitary, brown adipose tissue, and skeletal muscle, where it enables tissue-specific modulation of thyroid hormone signaling. The DIO2 antibody provides a robust tool for studying thyroid hormone

metabolism and energy regulation.

Type II iodothyronine deiodinase is a homodimeric membrane-bound enzyme located in the endoplasmic reticulum, characterized by a conserved selenocysteine residue within its catalytic center. It activates prohormone T4 to T3 by inner-ring deiodination, enhancing thyroid hormone receptor activation in target cells. The DIO2 antibody enables visualization of this enzyme in thyroid hormoneÂ–responsive tissues, facilitating studies of local hormone activation under varying physiological conditions such as cold exposure, fasting, or inflammation.

Regulation of DIO2 is complex, involving both transcriptional and post-translational control. Its expression increases in response to sympathetic stimulation, especially in brown adipose tissue, where it supports thermogenesis by elevating mitochondrial metabolism. The DIO2 antibody supports research into these adaptive responses, helping elucidate mechanisms that coordinate hormonal signaling and energy expenditure. In the central nervous system, DIO2 provides local T3 for neurons and glial cells, influencing neurodevelopment and hypothalamic feedback regulation of thyroid-stimulating hormone (TSH).

Mutations or polymorphisms in the DIO2 gene have been linked to thyroid disease, insulin resistance, and altered metabolic rate. Abnormal DIO2 activity may contribute to hypothyroidism, obesity, and neuropsychiatric disorders. The DIO2 antibody allows quantification of enzyme expression in tissues and model systems used to study endocrine and metabolic diseases. Detection of Type II iodothyronine deiodinase also aids in assessing how thyroid hormone activation varies among tissues under different metabolic states.

The DIO2 antibody is validated for western blotting, immunofluorescence, and immunohistochemistry. It provides strong cytoplasmic staining consistent with endoplasmic reticulum localization. NSJ Bioreagents supplies this antibody as a high-quality reagent for endocrinology and metabolism research. By enabling accurate detection of Type II iodothyronine deiodinase, the DIO2 antibody supports detailed investigation of thyroid hormone activation, thermogenesis, and metabolic adaptation.

Application Notes

Optimal dilution of the DIO2 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the N-terminus of human DIO2 was used as the immunogen for the DIO2 antibody.

Storage

After reconstitution, the DIO2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.