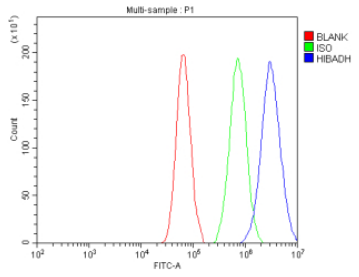
HIBADH Antibody / 3-Hydroxyisobutyrate dehydrogenase (FY12781)

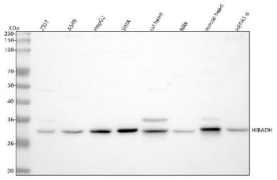
Catalog No.	Formulation	Size
FY12781	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, 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	P31937
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This HIBADH antibody is available for research use only.



Flow Cytometry analysis of cells using anti-HIBADH antibody. Overlay histogram showing cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-HIBADH antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample (Red line) was also used as a control.



Western blot analysis of HIBADH using anti-HIBADH antibody. Lane 1: human 293T whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human HepG2 whole cell lysates, Lane 4: human SIHA whole cell lysates, Lane 5: rat heart tissue lysates, Lane 6: rat NRK whole cell lysates, Lane 7: mouse heart tissue lysates, Lane 8: mouse HEPA1-6 whole cell 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-HIBADH 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 enhanced chemiluminescent. A predominant band at ~32 kDa corresponds to the processed mitochondrial form, with a weaker band near ~35 kDa representing the precursor or partially processed species relative to the ~35 kDa calculated mass.

Description

HIBADH antibody detects 3-hydroxyisobutyrate dehydrogenase, a mitochondrial enzyme that catalyzes a critical step in valine catabolism. Encoded by the HIBADH gene on chromosome 7q31.1, this enzyme converts 3-hydroxyisobutyrate to methylmalonate semialdehyde using NAD+ as a cofactor. HIBADH plays an important role in branched-chain amino acid degradation and energy production by linking valine metabolism to the tricarboxylic acid (TCA) cycle. It is primarily expressed in liver, kidney, muscle, and other energy-demanding tissues.

HIBADH localizes to the mitochondrial matrix, where it functions within the valine degradation pathway that ultimately generates succinyl-CoA for entry into the TCA cycle. This enzymatic step contributes to both energy generation and metabolic flexibility, especially during fasting or muscle exertion. In addition to its metabolic role, HIBADH helps regulate mitochondrial redox balance through NAD+/NADH interconversion. Mutations or deficiencies in this enzyme may disrupt amino acid catabolism and contribute to metabolic disorders involving organic acid accumulation.

The HIBADH antibody is used in metabolism, mitochondrial, and enzymology research to detect mitochondrial dehydrogenases and characterize amino acid catabolic pathways. Western blot analysis identifies a 35 kilodalton band corresponding to HIBADH, while immunofluorescence reveals punctate mitochondrial staining. This antibody provides a valuable reagent for studying mitochondrial metabolism, oxidative phosphorylation, and amino acid utilization under physiological and disease conditions.

Beyond energy metabolism, altered HIBADH expression has been linked to mitochondrial dysfunction, muscle wasting, and cancer metabolism. Its regulation reflects cellular metabolic adaptation to nutrient and energy demands. The HIBADH antibody is validated by NSJ Bioreagents for western blotting and flow cytometry, providing consistent performance for the analysis of mitochondrial enzymatic function and metabolic flux regulation.

Application Notes

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

Immunogen

E.coli-derived human HIBADH recombinant protein (Position: R34-E332) was used as the immunogen for the HIBADH antibody.

Storage

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