

# IDH3B Antibody / Isocitric dehydrogenase subunit beta (FY13009)

Catalog No.	Formulation	Size
FY13009	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
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	O43837
Applications	ELISA: 0.1-0.5ug/ml Flow Cytometry: 1-3ug/million cells Immunoprecipitation: 2-4ug/500ug of lysate Immunohistochemistry: 2-5ug/ml Western Blot: 0.25-0.5ug/ml
Limitations	This IDH3B antibody is available for research use only.

# **Description**

IDH3B antibody detects Isocitrate dehydrogenase [NAD]-subunit beta, a mitochondrial enzyme subunit that participates in the tricarboxylic acid (TCA) cycle. The UniProt recommended name is Isocitrate dehydrogenase [NAD] subunit beta, mitochondrial (IDH3B). This enzyme catalyzes the oxidative decarboxylation of isocitrate to alpha-ketoglutarate, producing NADH that fuels ATP synthesis through oxidative phosphorylation.

Functionally, IDH3B antibody identifies a 389-amino-acid mitochondrial matrix protein that forms part of the heterotetrameric IDH3 enzyme complex, along with alpha and gamma subunits (IDH3A and IDH3G). IDH3B provides structural stability and catalytic support, maintaining proper enzyme kinetics and cofactor affinity. This enzyme's reaction is irreversible under physiological conditions and represents a key regulatory step in the TCA cycle, linking carbohydrate, lipid, and amino acid metabolism.

The IDH3B gene is located on chromosome 20p13 and encodes a protein expressed in energy-demanding tissues such as heart, skeletal muscle, and brain. IDH3B ensures efficient NADH production for ATP generation and contributes to

metabolic integration between glycolysis and mitochondrial respiration. Its expression adapts to cellular energy status and oxygen availability, aligning mitochondrial metabolism with energy demand.

Mutations or reduced expression of IDH3B can impair mitochondrial respiration, resulting in metabolic dysfunction and neurodegenerative phenotypes. In contrast to NADP+-dependent IDH1 and IDH2, IDH3B is strictly NAD+-dependent and operates exclusively within mitochondria. Dysregulation of IDH3B expression has been observed in cancers and inherited mitochondrial disorders, where altered TCA cycle flux influences redox homeostasis and biosynthetic metabolism.

IDH3B antibody is widely used in metabolism, mitochondrial biology, and enzymology research. It is suitable for western blotting, immunofluorescence, and metabolic profiling assays to detect IDH3B in tissue or cell lysates. This antibody aids in studying mitochondrial energy metabolism, redox regulation, and enzyme complex formation. In disease models, IDH3B serves as a biomarker for mitochondrial dysfunction and altered oxidative metabolism.

Structurally, IDH3B forms part of the IDH3 heterotetramer, contributing to the active site environment through hydrogen-bonding and metal ion coordination. Post-translational modifications, including phosphorylation and acetylation, regulate its catalytic efficiency and protein-protein interactions. NSJ Bioreagents provides IDH3B antibody reagents validated for use in mitochondrial metabolism, redox regulation, and TCA cycle studies.

#### **Application Notes**

Optimal dilution of the IDH3B antibody should be determined by the researcher.

#### **Immunogen**

E.coli-derived human IDH3B recombinant protein (Position: A32-D362) was used as the immunogen for the IDH3B antibody.

## **Storage**

After reconstitution, the IDH3B antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.