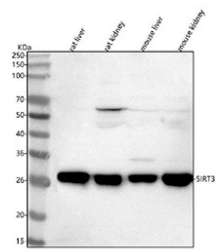
Sirtuin 3 Antibody / SIRT3 (FY13395)

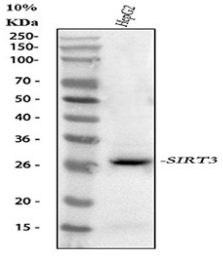
Catalog No.	Formulation	Size
FY13395	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	Q9NTG7
Localization	Cytoplasm (Mitochondria)
Applications	Western Blot: 0.25-0.5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This Sirtuin 3 antibody is available for research use only.



Sirtuin 3 Antibody Kidney and Liver WB. Western blot testing of 1) rat liver, 2) rat kidney, 3) mouse liver and 4) mouse kidney lysate with Sirtuin 3 antibody. Although the predicted molecular weight of the Sirtuin 3 precursor is ~44 kDa, all samples display a prominent ~29 kDa band corresponding to the mature, mitochondrially processed form of Sirtuin 3, consistent with known post-translational cleavage of its N-terminal targeting sequence.



Sirtuin 3 Antibody Human HepG2 Cell WB. Western blot testing of human HepG2 cell lysate with Sirtuin 3 antibody. Although the predicted molecular weight of the Sirtuin 3 precursor is ~44 kDa, all samples display a prominent ~29 kDa band corresponding to the mature, mitochondrially processed form of Sirtuin 3, consistent with known post-translational cleavage of its N-terminal targeting sequence.

Description

Sirtuin 3 antibody detects SIRT3, a mitochondrial NAD-dependent deacetylase that serves as a central regulator of cellular energy balance and mitochondrial protein function. The UniProt recommended name is NAD-dependent protein deacetylase sirtuin-3 (SIRT3). As a core member of the mitochondrial sirtuin family, SIRT3 coordinates metabolic efficiency, oxidative stress management, and mitochondrial adaptation to physiological demands such as fasting, exercise, and nutrient limitation.

Sirtuin 3 antibody identifies a protein synthesized as a precursor that is targeted to mitochondria, where it becomes activated through proteolytic processing. The mature SIRT3 enzyme resides predominantly in the mitochondrial matrix, where it modulates acetylation status of enzymes involved in oxidative phosphorylation, amino acid metabolism, ketogenesis, and antioxidant defense. By deacetylating factors such as SOD2, IDH2, and components of the electron transport chain, SIRT3 helps maintain ATP production capacity while controlling reactive oxygen species (ROS) accumulation.

The SIRT3 gene on chromosome 11p15.5 is widely expressed in metabolically active tissues including heart, liver, kidney, brown adipose tissue, and skeletal muscle. In these tissues, SIRT3 acts as a metabolic rheostat, enhancing mitochondrial performance during increased energy demand. In liver, SIRT3 supports fatty acid oxidation and helps maintain normal lipid homeostasis. In muscle, it improves mitochondrial endurance and contributes to exercise-induced metabolic remodeling. In thermogenic tissues, SIRT3 assists in maintaining heat production and energy expenditure.

Beyond its bioenergetic role, SIRT3 is deeply integrated into mechanisms of cellular resilience. Rising intracellular NAD levels activate SIRT3 under conditions of stress, fasting, or caloric restriction, triggering a broad pro-survival program that enhances mitochondrial stability, preserves mitochondrial DNA integrity, and limits oxidative injury. Through regulation of mitochondrial permeability and apoptotic factors, SIRT3 also helps determine cellular fate during metabolic or oxidative challenge. These combined functions position SIRT3 as a crucial guardian of mitochondrial health.

Dysregulation of SIRT3 has been associated with a wide spectrum of diseases. Reduced SIRT3 expression contributes to metabolic syndrome, insulin resistance, hepatic steatosis, and age-related mitochondrial decline. In neurodegenerative disease, insufficient SIRT3 activity may heighten neuronal vulnerability to oxidative stress. In cardiovascular injury, SIRT3 protects cardiac mitochondria from dysfunction caused by ischemia and oxidative overload. In several cancers, SIRT3 can function either as a tumor suppressor or metabolic facilitator depending on cellular environment, reflecting its diverse regulatory influence on mitochondrial pathways.

Research using Sirtuin 3 antibody supports studies in mitochondrial metabolism, redox regulation, stress adaptation, aging biology, and metabolic disease. SIRT3 antibody is validated for use in relevant research applications to detect mitochondrial deacetylase expression and examine mechanisms of metabolic control. NSJ Bioreagents provides Sirtuin 3 antibody reagents optimized for mitochondrial research, metabolic physiology, and oxidative stress biology.

Researchers studying mitochondrial metabolism, oxidative stress adaptation, and cellular energy regulation pathways may also be interested in our SIRT3 Antibody / Mitochondrial Metabolism Regulator page featuring validated immunofluorescence, flow cytometry, and protein microarray specificity data for mitochondrial biology research.

Application Notes

Optimal dilution of the Sirtuin 3 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SIRT3 recombinant protein (Position: R43-K399). Human Sirtuin 3 shares 83.5% amino acid (aa) sequence identity with mouse Sirtuin 3.

Storage

After reconstitution, the Sirtuin 3 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

SIRT3 mitochondrial antibody, Sirtuin 3 antibody, Mitochondrial deacetylase antibody, Oxidative stress regulator antibody, Metabolic stress response antibody

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