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SIRT3 Antibody

Catalog # ASC11136

Product Information

Application	WB, E
Primary Accession	Q9NTG7
Other Accession	NP_036371, 6912660
Reactivity	Human, Mouse, Rat
Host	Chicken
Clonality	Polyclonal
Isotype	IgY
Calculated MW	43573
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SIRT3 antibody can be used for detection of SIRT3 by Western blot at 1 - 2 g/mL.

Additional Information

Gene ID	23410
Other Names	NAD-dependent protein deacetylase sirtuin-3, mitochondrial, hSIRT3, 3.5.1.-, Regulatory protein SIR2 homolog 3, SIR2-like protein 3, SIRT3, SIR2L3
Target/Specificity	SIRT3;
Reconstitution & Storage	SIRT3 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	SIRT3 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SIRT3 {ECO:0000303|PubMed:12186850, ECO:0000312|HGNC:HGNC:14931}
Function	NAD-dependent protein deacetylase (PubMed: 12186850, PubMed:12374852, PubMed:16788062, PubMed:18680753, PubMed:18794531, PubMed:19535340, PubMed:23283301, PubMed:24121500, PubMed:24252090). Activates or deactivates mitochondrial target proteins by deacetylating key lysine residues (PubMed:12186850, PubMed:12374852, PubMed:16788062, PubMed:18680753, PubMed:18794531, PubMed:23283301, PubMed:24121500, PubMed:24252090, PubMed:38146092). Known targets include ACSS1, IDH, GDH, SOD2, PDHA1, LCAD, SDHA, MRPL12 and the ATP synthase subunit ATP5PO (PubMed:16788062, PubMed:18680753, PubMed:19535340,

PubMed:24121500, PubMed:24252090, PubMed:38146092). Contributes to the regulation of the cellular energy metabolism (PubMed:24252090). Important for regulating tissue-specific ATP levels (PubMed:18794531). In response to metabolic stress, deacetylates transcription factor FOXO3 and recruits FOXO3 and mitochondrial RNA polymerase POLRMT to mtDNA to promote mtDNA transcription (PubMed:23283301). Acts as a regulator of ceramide metabolism by mediating deacetylation of ceramide synthases CERS1, CERS2 and CERS6, thereby increasing their activity and promoting mitochondrial ceramide accumulation (By similarity). Regulates hepatic lipogenesis (By similarity). Uses NAD(+) substrate imported by SLC25A47, triggering downstream activation of PRKAA1/AMPK- alpha signaling cascade that ultimately down-regulates sterol regulatory element-binding protein (SREBP) transcriptional activities and ATP-consuming lipogenesis to restore cellular energy balance (By similarity). In addition to protein deacetylase activity, also acts as a protein-lysine deacylase by recognizing other acyl groups, such as benzoyl and lactoyl, leading to protein debenzoylation and delactylation, respectively (PubMed:39524354, PubMed:36896611, PubMed:37720100). Catalyzes debenzoylation of PPIF and ACLY (PubMed:37720100). Mediates delactylation of CCNE2 and 'Lys-16' of histone H4 (H4K16la) (PubMed:36896611, PubMed:37720100).

Cellular Location Mitochondrion matrix

Tissue Location Widely expressed.

Background

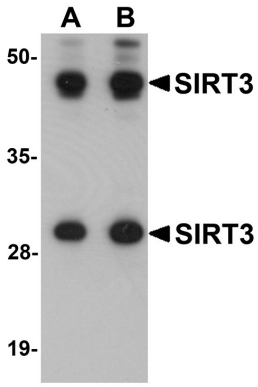
SIRT3 Antibody: The Silent Information Regulator (SIR2) family of genes are highly conserved from prokaryotes to eukaryotes and have important functions in the regulation of metabolism, growth and differentiation, inflammation, cellular survival, as well as in senescence, lifespan extension and several age-related diseases. Sirtuins are NAD+-dependent histone/protein deacetylases (HDAC) and SIRT3 is the only sirtuin whose increased expression has been shown to correlate with an extended life span in humans. It is localized in the mitochondrial matrix, where it regulates the acetylation levels of metabolic enzymes, including acetyl coenzyme A synthetase 2. SIRT3 is stress-responsive and its increased expression protects myocytes from genotoxic and oxidative stress-mediated cell death.

References

Guarente L. Sirtuins as potential targets for metabolic syndrome. Nature2006; 444:868-74.
Lavu S, Boss O, Elliott PJ, et al. Sirtuins - novel therapeutic targets to treat age-associated diseases. Nat. Rev. Drug. Disc.2008; 7:841-53.
Onyango P, Celic I, McCaffery JM, et al. SIRT3, a human SIR2 homologue, is an NAD-dependent deacetylase localized to mitochondria. Proc. Natl. Acad. Sci. USA.2002; 99:13653-8.
Hirschey MD, Shimazu T, Goetzman E, et al. SIRT3 regulates mitochondrial fatty-acid oxidation by reversible enzyme deacetylation. Nature2010; 464:121-5.

Images

Western blot analysis of SIRT3 in mouse heart tissue lysate with SIRT3 antibody at (A) 1 and (B) 2 µg/mL.



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