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SIRT3 Antibody
Catalog # ASC11136

Specification

SIRT3 Antibody - Product Information

Application	**WB**
Primary Accession	Q9NTG7
Other Accession	NP_036371, 6912660
Reactivity	**Human, Mouse, Rat**
Host	**Chicken**
Clonality	**Polyclonal**
Isotype	**IgY**
Application Notes	**SIRT3 antibody can be used for detection of SIRT3 by Western blot at 1 - 2 µg/mL.**

SIRT3 Antibody - Additional Information

Gene ID	**23410**

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.

SIRT3 Antibody - 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:<a

href="http://www.uniprot.org/citations/18680753" target="_blank">18680753, PubMed:18794531, PubMed:23283301, PubMed:24121500, PubMed:24252090). Known targets include ACSS1, IDH, GDH, SOD2, PDHA1, LCAD, SDHA and the ATP synthase subunit ATP5PO (PubMed:16788062, PubMed:18680753, PubMed:19535340, PubMed:24121500, PubMed:24252090). 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 downregulates 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 mediating delactylation of proteins, such as CCNE2 and 'Lys-16' of histone H4 (H4K16la) (PubMed:36896611, PubMed:37720100).

Cellular Location
Mitochondrion matrix

Tissue Location
Widely expressed.

SIRT3 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

SIRT3 Antibody - Images

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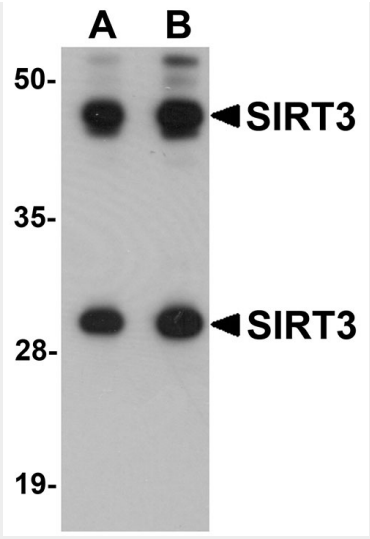

Western blot analysis of SIRT3 in mouse heart tissue lysate with SIRT3 antibody at (A) 1 and (B) 2 µg/mL.

SIRT3 Antibody - 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.

SIRT3 Antibody - 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.