

SIRT3 (14.45): sc-135796

BACKGROUND

The silent information regulator (SIR2) family of genes are highly conserved from prokaryotes to eukaryotes and are involved in diverse processes, including transcriptional regulation, cell cycle progression, DNA-damage repair and aging. In *S. cerevisiae*, Sir2p deacetylates histones in an NAD-dependent manner, which regulates silencing at the telomeric, rDNA and silent mating-type loci. Sir2p is the founding member of a large family, designated sirtuins, which contain a conserved catalytic domain. The human homologues, which include SIRT1-7, are divided into four main branches: SIRT1-3 are class I, SIRT4 is class II, SIRT5 is class III and SIRT6-7 are class IV. SIRT3 is a NAD-dependent deacetylase that contains one deacetylase sirtuin-type domain. The SIRT3 protein is widely expressed and localizes to the mitochondria where it is processed by mitochondrial processing peptidase (MPP) to yield a final product. This processing is most-likely necessary for its enzymatic activity.

REFERENCES

1. Frye, R.A. 1999. Characterization of five human cDNAs with homology to the yeast SIR2 gene: SIR2-like proteins (sirtuins) metabolize NAD and may have protein ADP-ribosyltransferase activity. *Biochem. Biophys. Res. Commun.* 260: 273-279.
2. Frye, R.A. 2000. Phylogenetic classification of prokaryotic and eukaryotic SIR2-like proteins. *Biochem. Biophys. Res. Commun.* 273: 793-798.
3. Grozinger, C.M., et al. 2001. Identification of a class of small molecule inhibitors of the sirtuin family of NAD-dependent deacetylases by phenotypic screening. *J. Biol. Chem.* 276: 38837-38843.
4. Michishita, E., et al. 2005. Evolutionarily conserved and nonconserved cellular localizations and functions of human SIRT proteins. *Mol. Biol. Cell* 16: 4623-4635.
5. Bellizzi, D., et al. 2005. A novel VNTR enhancer within the SIRT3 gene, a human homologue of SIR2, is associated with survival at oldest ages. *Genomics* 85: 258-263.
6. Shi, T., et al. 2005. SIRT3, a mitochondrial sirtuin deacetylase, regulates mitochondrial function and thermogenesis in brown adipocytes. *J. Biol. Chem.* 280: 13560-13567.

CHROMOSOMAL LOCATION

Genetic locus: SIRT3 (human) mapping to 11p15.5.

SOURCE

SIRT3 (14.45) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to amino acids 261-276 of SIRT3 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

SIRT3 (14.45) is recommended for detection of SIRT3 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SIRT3 siRNA (h): sc-61555, SIRT3 shRNA Plasmid (h): sc-61555-SH and SIRT3 shRNA (h) Lentiviral Particles: sc-61555-V.

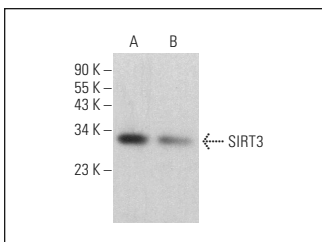
Molecular Weight of SIRT3: 28 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or A549 cell lysate: sc-2413.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BPHRP: sc-516102 or m-IgGκ BPHRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



SIRT3 (14.45): sc-135796. Western blot analysis of SIRT3 expression in Hep G2 (A) and A549 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Kim, Y.R., et al. 2018. *Toxoplasma gondii* GRA8 induces ATP5A1-SIRT3-mediated mitochondrial metabolic resuscitation: a potential therapy for sepsis. *Exp. Mol. Med.* 50: e464.

RESEARCH USE

For research use only, not for use in diagnostic procedures. Not for resale.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.



See **SIRT3 (F-10): sc-365175** for SIRT3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.