SANTA CRUZ BIOTECHNOLOGY, INC.

SIRT3 (N-18): sc-49743

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 homologs, 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 mitochondira 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; Sirt3 (mouse) mapping to 7 F4.

SOURCE

SIRT3 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of SIRT3 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-49743 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SIRT3 (N-18) is recommended for detection of SIRT3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SIRT3 (N-18) is also recommended for detection of SIRT3 in additional species, including equine and canine.

Suitable for use as control antibody for SIRT3 siRNA (h): sc-61555, SIRT3 siRNA (m): sc-61556, SIRT3 shRNA Plasmid (h): sc-61555-SH, SIRT3 shRNA Plasmid (m): sc-61556-SH, SIRT3 shRNA (h) Lentiviral Particles: sc-61555-V and SIRT3 shRNA (m) Lentiviral Particles: sc-61556-V.

Molecular Weight of SIRT3: 28 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Li, T.T., et al. 2011. Effects of caloric restriction on the oxidative stress injury and the expression of SIRT3 in PC12 cell. Zhonghua Yi Xue Za Zhi 91: 350-358.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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