

SIRT1 (B-7): sc-74465

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. SIRT1 has the closest homology to the yeast Sir2p and is widely expressed in fetal and adult tissues. SIRT1 is highly expressed in heart, brain and skeletal muscle, with low expression in lung and placenta. SIRT1 regulates the p53-dependent DNA damage response pathway by binding to and deacetylating p53, specifically at Lys 382.

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. Afshar, G. and Murnane, J.P. 1999. Characterization of a human gene with sequence homology to *Saccharomyces cerevisiae* Sir2. *Gene* 234: 161-168.
3. Sherman, J.M., et al. 1999. The conserved core of a human SIR2 homolog functions in yeast silencing. *Mol. Biol. Cell* 10: 3045-3059.

CHROMOSOMAL LOCATION

Genetic locus: SIRT1 (human) mapping to 10q21.3; Sirt1 (mouse) mapping to 10 B4.

SOURCE

SIRT1 (B-7) is a mouse monoclonal antibody raised against amino acids 448-747 of SIRT1 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.

SIRT1 (B-7) is available conjugated to agarose (sc-74465 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74465 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74465 PE), fluorescein (sc-74465 FITC), Alexa Fluor® 488 (sc-74465 AF488), Alexa Fluor® 546 (sc-74465 AF546), Alexa Fluor® 594 (sc-74465 AF594) or Alexa Fluor® 647 (sc-74465 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74465 AF680) or Alexa Fluor® 790 (sc-74465 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

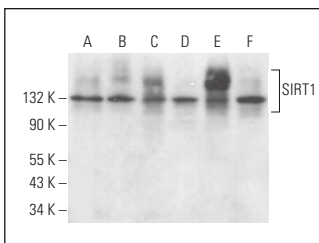
SIRT1 (B-7) is recommended for detection of SIRT1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SIRT1 siRNA (h): sc-40986, SIRT1 siRNA (m): sc-40987, SIRT1 siRNA (r): sc-108043, SIRT1 shRNA Plasmid (h): sc-40986-SH, SIRT1 shRNA Plasmid (m): sc-40987-SH, SIRT1 shRNA Plasmid (r): sc-108043-SH, SIRT1 shRNA (h) Lentiviral Particles: sc-40986-V, SIRT1 shRNA (m) Lentiviral Particles: sc-40987-V and SIRT1 shRNA (r) Lentiviral Particles: sc-108043-V.

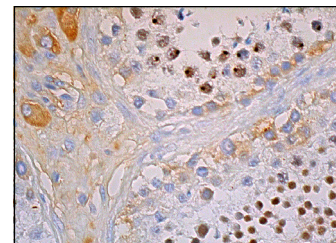
Molecular Weight of SIRT1: 120 kDa.

Positive Controls: AN3 CA cell lysate: sc-24662, NTERA-2 cl.D1 whole cell lysate: sc-364181 or U-698-M whole cell lysate: sc-364799.

DATA



SIRT1 (B-7): sc-74465. Western blot analysis of SIRT1 expression in NTERA-2 cl.D1 (A), U-698-M (B), MEG-01 (C), ALL-SIL (D), TF-1 (E) and AN3 CA (F) whole cell lysates.



SIRT1 (B-7): sc-74465. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of subset of cells in seminiferous ducts and cytoplasmic staining of Leydig cells.

SELECT PRODUCT CITATIONS

1. Shang, L., et al. 2009. Serum withdrawal up-regulates human SIRT1 gene expression in a p53-dependent manner. *J. Cell. Mol. Med.* 13: 4176-4184.
2. Vyas, H., et al. 2023. miR34a-5p impedes CLOCK expression in chronodisruptive C57BL/6J mice and potentiates pro-atherogenic manifestations. *PLoS ONE* 18: e0283591.
3. Aragón-Vela, J., et al. 2024. Early heart and skeletal muscle mitochondrial response to a moderate hypobaric hypoxia environment. *J. Physiol.* 602: 5631-5641.
4. González-Alfonso, W.L., et al. 2025. Chronic exposure to arsenic and fluoride starting at gestation alters liver mitochondrial protein expression and induces early onset of liver fibrosis in male mouse offspring. *Biol. Trace Elem. Res.* 203: 930-943.

RESEARCH USE

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