

SIRT7 (C-3): sc-365344

BACKGROUND

Sirtuins (SIRT1-7) are human homologs of the yeast Sir2 (silent information regulator 2) protein and are divided into four main classes: SIRT1-3 are class I, SIRT4 is class II, SIRT5 is class III and SIRT6-7 are class IV. In *S. cerevisiae*, Sir2 deacetylates histones in an NAD-dependent manner, which regulates silencing at the telomeric, rDNA (ribosomal DNA) and silent mating-type loci. The human SIRT proteins are NAD-dependent deacetylases that act as intracellular regulators and are thought to have ribosyltransferase activity. SIRT7 (NAD-dependent deacetylase sirtuin 7), also known as SIR2L7, is a member of the class IV sirtuin family and is localized to the nucleolus. Expressed throughout the body, SIRT7 associates with rDNA genes where it interacts with histones and acts as a positive regulator of RNA polymerase I (Pol I). SIRT7 is a probable NAD-dependent deacetylase whose expression is upregulated in thyroid carcinoma cells. Overexpression of SIRT7 increases Pol I-mediated transcription, thereby speeding cell growth and contributing to the development of cancer. Two isoforms exist due to alternative splicing events.

REFERENCES

1. Frye, R.A. 2000. Phylogenetic classification of prokaryotic and eukaryotic Sir2-like proteins. *Biochem. Biophys. Res. Commun.* 273: 793-798.
2. Frye, R. 2002. "SIRT8" expressed in thyroid cancer is actually SIRT7. *Br. J. Cancer* 87: 1479.
3. Michishita, E., et al. 2005. Evolutionarily conserved and nonconserved cellular localizations and functions of human SIRT proteins. *Mol. Biol. Cell* 16: 4623-4635.

CHROMOSOMAL LOCATION

Genetic locus: SIRT7 (human) mapping to 17q25.3; Sirt7 (mouse) mapping to 11 E2.

SOURCE

SIRT7 (C-3) is a mouse monoclonal antibody raised against amino acids 1-105 mapping at the N-terminus of SIRT7 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.

SIRT7 (C-3) is available conjugated to agarose (sc-365344 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365344 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365344 PE), fluorescein (sc-365344 FITC), Alexa Fluor[®] 488 (sc-365344 AF488), Alexa Fluor[®] 546 (sc-365344 AF546), Alexa Fluor[®] 594 (sc-365344 AF594) or Alexa Fluor[®] 647 (sc-365344 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-365344 AF680) or Alexa Fluor[®] 790 (sc-365344 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

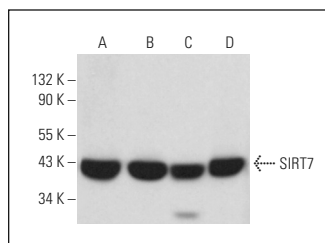
SIRT7 (C-3) is recommended for detection of SIRT7 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SIRT7 siRNA (h): sc-63030, SIRT7 siRNA (m): sc-63031, SIRT7 shRNA Plasmid (h): sc-63030-SH, SIRT7 shRNA Plasmid (m): sc-63031-SH, SIRT7 shRNA (h) Lentiviral Particles: sc-63030-V and SIRT7 shRNA (m) Lentiviral Particles: sc-63031-V.

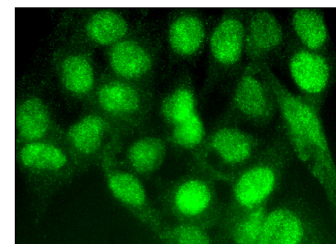
Molecular Weight of SIRT7: 45 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, Caki-1 cell lysate: sc-2224 or K-562 whole cell lysate: sc-2203.

DATA



SIRT7 (C-3): sc-365344. Western blot analysis of SIRT7 expression in Caki-1 (A), K-562 (B), ZR-75-1 (C) and KNRK (D) whole cell lysates.



SIRT7 (C-3): sc-365344. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Nahálková, J. 2015. Novel protein-protein interactions of TPPII, p53, and SIRT7. *Mol. Cell. Biochem.* 409: 13-22.
2. Jing, H., et al. 2016. A SIRT2-selective inhibitor promotes c-Myc oncoprotein degradation and exhibits broad anticancer activity. *Cancer Cell* 29: 297-310.
3. Liu, X., et al. 2017. MicroRNA-526b serves as a prognostic factor and exhibits tumor suppressive property by targeting sirtuin 7 in hepatocellular carcinoma. *Oncotarget* 8: 87737-87749.
4. Qi, H., et al. 2018. Sirtuin 7-mediated deacetylation of WD repeat domain 77 (WDR77) suppresses cancer cell growth by reducing WDR77/PRMT5 transmethylation complex activity. *J. Biol. Chem.* 293: 17769-17779.
5. Bao, X., et al. 2019. Glutarylation of Histone H4 lysine 91 regulates chromatin dynamics. *Mol. Cell* 76: 660-675.e9.
6. Qing, E., et al. 2020. Distinct roles for sialoside and protein receptors in coronavirus infection. *mBio* 11: e02764-19.

RESEARCH USE

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