

# SIRT4 (95.61): sc-135798

## 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. SIRT4 (Sir2-like protein 4), also known as SIR2L4 or sirtuin 4, belongs to the class II family of sirtuins and localizes to the mitochondrial matrix. Expressed throughout the body, SIRT4 interacts with Insulin-degrading enzymes and, through its ADP-ribosyltransferase activity, functions to negatively regulate Insulin secretion from pancreatic  $\beta$  cells. SIRT4 contains one deacetylase sirtuin-type domain and can bind zinc as a catalytic cofactor.

## 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. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604482. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Kyrilenko, S., et al. 2003. Differential regulation of the Sir2 histone deacetylase gene family by inhibitors of class I and II histone deacetylases. *Cell. Mol. Life Sci.* 60: 1990-1997.
5. Michishita, E., et al. 2005. Evolutionarily conserved and nonconserved cellular localizations and functions of human SIRT proteins. *Mol. Biol. Cell* 16: 4623-4635.
6. Bradbury, C.A., et al. 2005. Histone deacetylases in acute myeloid leukaemia show a distinctive pattern of expression that changes selectively in response to deacetylase inhibitors. *Leukemia* 19: 1751-1759.
7. Haigis, M.C., et al. 2006. SIRT4 inhibits glutamate dehydrogenase and opposes the effects of calorie restriction in pancreatic  $\beta$  cells. *Cell* 126: 941-954.
8. Ahuja, N., et al. 2007. Regulation of Insulin secretion by SIRT4, a mitochondrial ADP-ribosyltransferase. *J. Biol. Chem.* 282: 33583-33592.
9. Nakamura, Y., et al. 2008. Localization of mouse mitochondrial SIRT proteins: shift of SIRT3 to nucleus by co-expression with SIRT5. *Biochem. Biophys. Res. Commun.* 366: 174-179.

## CHROMOSOMAL LOCATION

Genetic locus: SIRT4 (human) mapping to 12q24.31.

## SOURCE

SIRT4 (95.61) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to amino acids 241-255 of SIRT4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

SIRT4 (95.61) is recommended for detection of SIRT4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SIRT4 siRNA (h): sc-63024, SIRT4 shRNA Plasmid (h): sc-63024-SH and SIRT4 shRNA (h) Lentiviral Particles: sc-63024-V.

Molecular Weight of SIRT4: 35 kDa.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (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.

## SELECT PRODUCT CITATIONS

1. Xia, Y.Q., et al. 2018. SIRT6 depletion sensitizes human hepatoma cells to chemotherapeutics by downregulating MDR1 expression. *Front. Pharmacol.* 9: 194.
2. Tae, I.H., et al. 2018. Novel SIRT1 inhibitor 15-deoxy- $\Delta$ 12,14-prostaglandin J2 and its derivatives exhibit anticancer activity through apoptotic or autophagic cell death pathways in SKOV3 cells. *Int. J. Oncol.* E-published.

## 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. Not for resale.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.