

# SIRT2 siRNA (m): sc-40989

## BACKGROUND

The silent information regulator (SIRT2) 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 a 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. SIRT proteins may function via mono-ADP-ribosylation of proteins. SIRT2 contains a 323 amino acid catalytic core domain with a NAD-binding domain and a large groove which is the likely site of catalysis.

## REFERENCES

1. Frye, R.A. 1999. Characterization of five human cDNAs with homology to the yeast SIRT2 gene: Sir2-like proteins (sirtuins) metabolize NAD and may have protein ADP-ribosyltransferase activity. *Biochem. Biophys. Res. Commun.* 260: 273-279.
2. Sherman, J.M., et al. 1999. The conserved core of a human Sir2 homologue functions in yeast silencing. *Mol. Biol. Cell* 10: 3045-3059.
3. Frye, R.A. 2000. Phylogenetic classification of prokaryotic and eukaryotic SIRT2-like proteins. *Biochem. Biophys. Res. Commun.* 273: 793-798.
4. 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.

## CHROMOSOMAL LOCATION

Genetic locus: Sirt2 (mouse) mapping to 7 A3.

## PRODUCT

SIRT2 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SIRT2 shRNA Plasmid (m): sc-40989-SH and SIRT2 shRNA (m) Lentiviral Particles: sc-40989-V as alternate gene silencing products.

For independent verification of SIRT2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-40989A, sc-40989B and sc-40989C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

SIRT2 siRNA (m) is recommended for the inhibition of SIRT2 expression in mouse cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

SIRT2 (A-5): sc-28298 is recommended as a control antibody for monitoring of SIRT2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SIRT2 gene expression knockdown using RT-PCR Primer: SIRT2 (m)-PR: sc-40989-PR (20  $\mu$ l, 434 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Oh, H., et al. 2015. Reciprocal regulation by hypoxia-inducible factor-2 $\alpha$  and the NAMPT-NAD<sup>+</sup>-SIRT axis in articular chondrocytes is involved in osteoarthritis. *Osteoarthr. Cartil.* 23: 2288-2296.

## RESEARCH USE

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

## PROTOCOLS

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