SANTA CRUZ BIOTECHNOLOGY, INC.

# SMYD1 siRNA (h): sc-76527

## BACKGROUND

SMYD1 (SET and MYND domain-containing protein 1), also known as BOP, ZMYND18 or ZMYND22, is a nuclear and cytoplasmic protein that contains one SET domain and one MYND-type zinc finger. Expressed specifically in cardiac and skeletal muscle, SMYD1 functions as a transcription factor that is essential for cardiac morphogenesis and proper cardiomyocyte differentiation. SMYD1 interacts with the histone deacetylases HDAC1, HDAC2 and HDAC3 and, through this interaction, acts as a histone deacetylase-dependent transcriptional repressor. Defects or deletions in the gene encoding SMYD1 lead to retarded maturation of ventricular cardiomyocytes, further implicating SMYD1 as a crucial component of normal cardiac development.

## REFERENCES


1. Hwang, I. and Gottlieb, P.D. 1995. Bop: a new T cell-restricted gene located upstream of and opposite to mouse CD8b. Immunogenetics 42: 353-361.
2. Sims, R.J., et al. 2002. m-Bop, a repressor protein essential for cardiogenesis, interacts with skNAC, a heart- and muscle-specific transcription factor. J. Biol. Chem. 277: 26524-26529.
3. Gottlieb, P.D., et al. 2002. Bop encodes a muscle-restricted protein containing MYND and SET domains and is essential for cardiac differentiation and morphogenesis. Nat. Genet. 31: 25-32.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606846. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Phan, D., et al. 2005. BOP, a regulator of right ventricular heart development, is a direct transcriptional target of MEF2C in the developing heart. Development 132: 2669-2678.
6. Du, S.J., et al. 2006. Muscle-specific expression of the smyd1 gene is controlled by its 5.3 kb promoter and 5'-flanking sequence in zebrafish embryos. Dev. Dyn. 235: 3306-3315.
7. Tan, X., et al. 2006. SMYD1, a histone methyltransferase, is required for myofibril organization and muscle contraction in zebrafish embryos. Proc. Natl. Acad. Sci. USA 103: 2713-2718.


## CHROMOSOMAL LOCATION

Genetic locus: SMYD1 (human) mapping to 2p11.2.

## PRODUCT

SMYD1 siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SMYD1 shRNA Plasmid (h): sc-76527-SH and SMYD1 shRNA (h) Lentiviral Particles: sc-76527-V as alternate gene silencing products.

For independent verification of SMYD1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-76527A, sc-76527B and sc-76527C.

## 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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

SMYD1 siRNA (h) is recommended for the inhibition of SMYD1 expression in human 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 µM in 66 µl. 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

SMYD1 (D-1): sc-514805 is recommended as a control antibody for monitoring of SMYD1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SMYD1 gene expression knockdown using RT-PCR Primer: SMYD1 (h)-PR: sc-76527-PR (20 µl, 537 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## RESEARCH USE

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

## PROTOCOLS

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