SANTA CRUZ BIOTECHNOLOGY, INC.

SMYD1 (D-1): sc-514805

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

SMYD1 (D-1) is a mouse monoclonal antibody raised against amino acids 181-480 mapping near the C-terminus of SMYD1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SMYD1 (D-1) is available conjugated to agarose (sc-514805 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-514805 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514805 PE), fluorescein (sc-514805 FITC), Alexa Fluor® 488 (sc-514805 AF488), Alexa Fluor® 546 (sc-514805 AF546), Alexa Fluor® 594 (sc-514805 AF594) or Alexa Fluor® 647 (sc-514805 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514805 AF680) or Alexa Fluor® 790 (sc-514805 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SMYD1 (D-1) is recommended for detection of SMYD1 of 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 SMYD1 siRNA (h): sc-76527, SMYD1 shRNA Plasmid (h): sc-76527-SH and SMYD1 shRNA (h) Lentiviral Particles: sc-76527-V.

Molecular Weight of human SMYD1: 57 kDa.

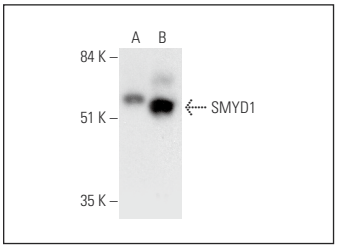
Molecular Weight of mouse SMYD1 isoforms: 56/55/53 kDa.

Positive Controls: human heart extract: sc-363763 or human skeletal muscle extract: sc-363776.

RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



SMYD1 (D-1): sc-514805. Western blot analysis of SMYD1 expression in human heart (**A**) and human skeletal muscle (**B**) tissue extracts.

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.

PROTOCOLS

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