

SMYD1 (h2): 293T Lysate: sc-177957

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., Weihe, E.K., Zhu, L., O'Malley, S., Harriss, J.V. and Gottlieb, P.D. 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., Pierce, S.A., Sims, R.J., Yamagishi, H., Weihe, E.K., Harriss, J.V., Maika, S.D., Kuziel, W.A., King, H.L., Olson, E.N., Nakagawa, O. and Srivastava, D. 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., Rasmussen, T.L., Nakagawa, O., McAnally, J., Gottlieb, P.D., Tucker, P.W., Richardson, J.A., Bassel-Duby, R. and Olson, E.N. 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., Rotllant, J. and Tan, X. 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., Rotllant, J., Li, H., De Deyne, P., DeDeyne, P. and Du, S.J. 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 (mouse) mapping to 6 C1.

PRODUCT

SMYD1 (h2): 293T Lysate represents a lysate of human SMYD1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

SMYD1 (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive SMYD1 antibodies.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

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.