SANTA CRUZ BIOTECHNOLOGY, INC.

SMYD3 (C-19): sc-49517

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

SET and MYND domain-containing 3 (SMYD3), a 428 amino acid protein, is a member of an RNA polymerase complex and plays a role in transcriptional regulation. SMYD3 methylates Lys 4 of Histone H3, a specific tag for epigenetic transcriptional activation. The SMYD3 protein contains an N-terminal MYND-type zinc finger domain, followed by a SET domain, which shows methyltransferase activity. The presence of the heat-shock protein HSP 90A greatly enhances the methyltransferase activity of SMYD3. SMYD3 is expressed in testis and skeletal muscles and is overexpressed in a majority of colorectal carcinomas (CRCs), hepatocellular carcinomas (HCCs) and breast carcinomas (BCs). Inhibition of SMYD3 is a potential chemotherapeutic strategy.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608783: World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
2. Hamamoto, R., Furukawa, Y., Morita, M., Iimura, Y., Silva, F.P., Li, M., Yagyu, R. and Nakamura, Y. 2004. SMYD3 encodes a histone methyltransferase involved in the proliferation of cancer cells. Nat. Cell Biol. 6: 731-740.
3. Ruden, D.M., Xiao, L., Garfinkel, M.D. and Lu, X. 2005. HSP 90 and environmental impacts on epigenetic states: a model for the trans-generational effects of diethylstibesterol on uterine development and cancer. Hum. Mol. Genet. 14: 149-155.
4. Tsuge, M. Hamamoto, R., Silva, F.P., Ohnishi, Y., Chayama, K., Kamatani, N., Furukawa, Y. and Nakamura, Y. 2005. A variable number of tandem repeats polymorphism in an E2F-1 binding element in the 5' flanking region of SMYD3 is a risk factor for human cancers. Nat. Genet. 37: 1104-1107.
5. Zhou, Z., Ren, X., Huang, X., Lu, L., Xu, M., Yin, L., Li, J. and Sha, J. 2005. SMYD3-NY, a novel SMYD3 mRNA transcript variant, may have a role in human spermatogenesis. Ann. Clin. Lab. Sci. 35: 270-277.
6. Hamamoto, R., Silva, F.P., Tsuge, M., Nishidate, T., Katagiri, T., Nakamura, Y. and Furukawa, Y. 2006. Enhanced SMYD3 expression is essential for the growth of breast cancer cells. Cancer Sci. 97: 113-118.

CHROMOSOMAL LOCATION

Genetic locus: SMYD3 (human) mapping to 1q44; Smyd3 (mouse) mapping to 1 H3.

SOURCE

SMYD3 (C-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SMYD3 of human origin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-49517 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SMYD3 (C-19) is recommended for detection of SMYD3 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

SMYD3 (C-19) is also recommended for detection of SMYD3 isoforms 1 and 2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for SMYD3 siRNA (h): sc-61575, SMYD3 siRNA (m): sc-61576, SMYD3 shRNA Plasmid (h): sc-61575-SH, SMYD3 shRNA Plasmid (m): sc-61576-SH, SMYD3 shRNA (h) Lentiviral Particles: sc-61575-V and SMYD3 shRNA (m) Lentiviral Particles: sc-61576-V.

Molecular Weight of SMYD3: 49 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or mouse brain extract: sc-2253.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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