

SmcY (4C6): sc-293280

BACKGROUND

SmcY, also known as JARID1D (Jumonji/ARID domain-containing protein 1D), HY, HYA or KDM5D, is a nuclear protein that belongs to the JARID1 histone demethylase family. Encoded by a gene on the Y chromosome, SmcY is expressed only in male tissues where it functions as a histone demethylase that removes specific methyl residues from Histone H3, thereby playing a role in the histone code. SmcY uses ascorbate (vitamin C) and iron as cofactors and contains several domains, including one JMJC domain, through which it conveys its enzymatic activity. In addition to its demethylase activity, SmcY can be cleaved into a small peptide that functions as a minor histocompatibility antigen (termed HY or HYA) that rejects female tissue and may be involved in male development and fertility. Multiple isoforms of SmcY exist due to alternative splicing events.

REFERENCES

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2. Agulnik, A.I., et al. 1997. Analysis of mutation rates in the SMCY/SMCX genes shows that mammalian evolution is male driven. *Mamm. Genome* 8: 134-138.
3. Rufer, N., et al. 1998. HA-1 and the SmcY-derived peptide FDSYICQV (H-Y) are immunodominant minor histocompatibility antigens after bone marrow transplantation. *Transplantation* 66: 910-916.
4. Agulnik, A.I., et al. 1999. Mouse H-Y encoding SmcY gene and its X chromosomal homolog Smcx. *Mamm. Genome* 10: 926-929.
5. Agulnik, A.I., et al. 2001. SmcY transgene does not rescue spermatogenesis in sex-reversed mice. *Mamm. Genome* 12: 112-116.
6. Millrain, M., et al. 2005. Identification of the immunodominant HY H2-D^k epitope and evaluation of the role of direct and indirect antigen presentation in HY responses. *J. Immunol.* 175: 7209-7217.
7. Teng, Y.N., et al. 2007. A simplified gene-specific screen for Y chromosome deletions in infertile men. *Fertil. Steril.* 87: 1291-1300.
8. Iwase, S., et al. 2007. The X-linked mental retardation gene SMCX/JARID1C defines a family of histone H3 lysine 4 demethylases. *Cell* 128: 1077-1088.
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CHROMOSOMAL LOCATION

Genetic locus: KDM5D (human) mapping to Yq11.222.

SOURCE

SmcY (4C6) is a mouse monoclonal antibody raised against amino acids 127-230 of SmcY of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SmcY (4C6) is recommended for detection of SmcY of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with SmcX.

Suitable for use as control antibody for SmcY siRNA (h): sc-91559, SmcY shRNA Plasmid (h): sc-91559-SH and SmcY shRNA (h) Lentiviral Particles: sc-91559-V.

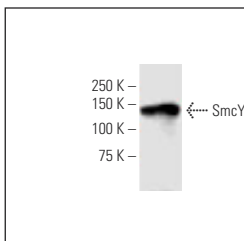
Molecular Weight of SmcY: 174 kDa.

Positive Controls: human placenta extract: sc-363772 or K-562 whole cell lysate: sc-2203.

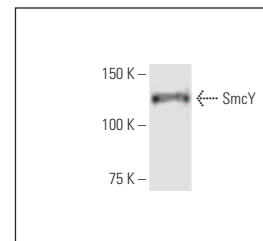
RECOMMENDED SUPPORT REAGENTS

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).

DATA



SmcY (4C6): sc-293280. Western blot analysis of SmcY expression in human placenta tissue extract.



SmcY (4C6): sc-293280. Western blot analysis of SmcY expression in K-562 whole cell lysate.

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.