

SmcY (G-18): sc-83944

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. Here 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

1. Agulnik, A.I., Mitchell, M.J., Lerner, J.L., Woods, D.R. and Bishop, C.E. 1994. A mouse Y chromosome gene encoded by a region essential for spermatogenesis and expression of male-specific minor histocompatibility antigens. *Hum. Mol. Genet.* 3: 873-878.
2. Agulnik, A.I., Bishop, C.E., Lerner, J.L., Agulnik, S.I. and Solovyev, V.V. 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., Wolpert, E., Helg, C., Tiercy, J.M., Gratwohl, A., Chapuis, B., Jeannet, M., Goulmy, E. and Roosnek, E. 1998. HA-1 and the SMCY-derived peptide FIDSYICQV (H-Y) are immunodominant minor histocompatibility antigens after bone marrow transplantation. *Transplantation* 66: 910-916.
4. Agulnik, A.I., Longepied, G., Ty, M.T., Bishop, C.E. and Mitchell, M. 1999. Mouse H-Y encoding Smcy gene and its X chromosomal homolog Smcx. *Mamm. Genome* 10: 926-929.
5. Agulnik, A.I., Harrison, W.R. and Bishop, C.E. 2001. Smcy transgene does not rescue spermatogenesis in sex-reversed mice. *Mamm. Genome* 12: 112-116.
6. Millrain, M., Scott, D., Addey, C., Dewchand, H., Ellis, P., Ehrmann, I., Mitchell, M., Burgoyne, P., Simpson, E. and Dyson, J. 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., Lin, Y.H., Tsai, Y.C., Hsu, C.C., Kuo, P.L. and Lin, Y.M. 2007. A simplified gene-specific screen for Y chromosome deletions in infertile men. *Fertil. Steril.* 87: 1291-1300.

CHROMOSOMAL LOCATION

Genetic locus: JARID1D (human) mapping to Yq11.222.

SOURCE

SmcY (G-18) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of SmcY 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 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-83944 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SmcY (G-18) is recommended for detection of SmcY of 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).

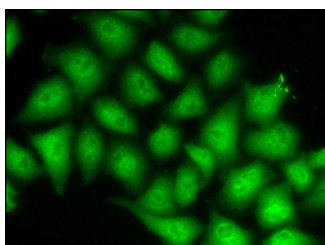
Suitable for use as control antibody for SmcY siRNA (h): sc-91559, SmcY shRNA Plasmid (h): sc-91559-SH and SmcY shRNA (h) Lentiviral Particles: sc-91559-V.

Molecular Weight of SmcY: 174 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



SmcY (G-18): sc-83944. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear and cytoplasmic localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School.

RESEARCH USE

For research use only, not for use in diagnostic procedures



Try **SmcY (4C6): sc-293280**, our highly recommended monoclonal alternative to SmcY (G-18).