SANTA CRUZ BIOTECHNOLOGY, INC.

SmcX (C-12): sc-365861

BACKGROUND

SmcX, also known as JARID1C (Jumonji, AT rich interactive domain 1C), MRXJ, KDM5C or XE169, is a nuclear protein that contains one ARID domain, one JMJC domain, one JMJN domain and two PHD-type zinc fingers and belongs to the JARID1 histone demethylase family. Expressed ubiquitously with highest expression in brain and skeletal muscle, SmcX functions as a histone demethylase that removes methyl groups from lysine residues on Histone H3, thereby playing a role in the histone code, as well as transcriptional regulation and chromatin remodeling. SmcX binds iron and α-ketoglutarate as cofactors and can recruit histone deacetylases to neuron silencer elements, thus re-pressing the transcription of neuronal genes. Defects in the gene encoding SmcX are associated with X-linked mental retardation (XLMR), a condition characterized by cognitive impairment and a low IQ. Multiple isoforms of SmcX are expressed due to alternative splicing events.

REFERENCES

1. Wu, J., et al. 1994. Isolation and characterization of XE169, a novel human gene that escapes X-inactivation. Hum. Mol. Genet. 3: 153-160.
2. Jensen, L.R., et al. 2005. Mutations in the JARID1C gene, which is involved in transcriptional regulation and chromatin remodeling, cause X-linked mental retardation. Am. J. Hum. Genet. 76: 227-236.
3. Santos, C., et al. 2006. A novel mutation in JARID1C gene associated with mental retardation. Eur. J. Hum. Genet. 14: 583-586.
4. Tzschach, A., et al. 2006. Novel JARID1C/SmcX mutations in patients with X-linked mental retardation. Hum. Mutat. 27: 389.
5. Tahiliani, M., et al. 2007. The Histone H3K4 demethylase SmcX links REST target genes to X-linked mental retardation. Nature 447: 601-605.
6. 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.
7. Adegbola, A., et al. 2008. A novel mutation in JARID1C/SmcX in a patient with autism spectrum disorder (ASD). Am. J. Med. Genet. A 146A: 505-511.
8. Kim, T.D., et al. 2008. Repression of Smad3 activity by histone demethylase SmcX/JARID1C. Biochem. Biophys. Res. Commun. 366: 563-567.

CHROMOSOMAL LOCATION

Genetic locus: KDM5C (human) mapping to Xp11.22.

SOURCE

SmcX (C-12) is a mouse monoclonal antibody raised against amino acids 1462-1560 mapping at the C-terminus of SmcX of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-365861 X, 200 µg/0.1 ml.

RESEARCH USE

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

APPLICATIONS

SmcX (C-12) is recommended for detection of SmcX 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 SmcX siRNA (h): sc-76519, SmcX shRNA Plasmid (h): sc-76519-SH and SmcX shRNA (h) Lentiviral Particles: sc-76519-V.

SmcX (C-12) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

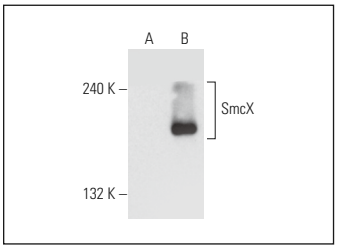
Molecular Weight of SmcX: 176 kDa.

Positive Controls: SmcX (h): 293T Lysate: sc-116240.

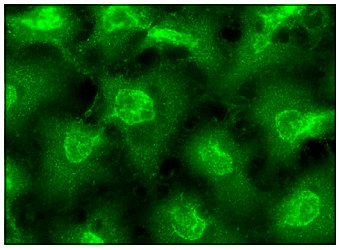
RECOMMENDED SUPPORT REAGENTS

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



SmcX (C-12): sc-365861. Western blot analysis of SmcX expression in non-transfected: sc-117752 (**A**) and human SmcX transfected: sc-116240 (**B**) 293T whole cell lysates.



SmcX (C-12): sc-365861. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

STORAGE

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

PROTOCOLS

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