SANTA CRUZ BIOTECHNOLOGY, INC.

SMC3 (E-3): sc-376352

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The SMC (structural maintenance of chromosomes) family of proteins form heterodimeric complexes that modulate sister chromatid cohesion and chromosome condensation for mitosis. The two distinct classes of SMC protein complexes are comprised of SMC1 (also designated SB1.8) with SMC3 (also designated HCAP for human chromosome-associated protein and bamacan for the secreted proteoglycan), and SMC2 (also designated hCAP-E) with SMC4 (also designated hCAP-C). The SMC1/SMC3 complex is required for metaphase progression in mitotic cells and functions independently of the SMC2/SMC4 complex during the cell cycle. SMC1 is ubiqitiously expressed in various human tissues, including thymus, testis, and colon. SMC3 is expressed as a nuclear protein in the colon, but can also occur as a secreted proteoglycan expressed in testis and brain. The secreted proteoglycan contains several glycosylation sites and is thought to play a role in basement membrane physiology.

REFERENCE

1. Strunnikov, A.V., et al. 1993. SMC1: an essential yeast gene encoding a putative head-rod-tail protein is required for nuclear division and defines a new ubiquitous protein family. J. Cell Biol. 123: 1635-1648.
2. Rocques, P.J., et al. 1995. The human SB1.8 gene (DXS423E) encodes a putative chromosome segregation protein conserved in lower eukaryotes and prokaryotes. Hum. Mol. Genet. 4: 243-249.
3. Ljubimov, A.V., et al. 1996. Basement membrane abnormalities in human eyes with diabetic retinopathy. J. Histochem. Cytochem. 44: 1469-1479.

CHROMOSOMAL LOCATION

Genetic locus: SMC3 (human) mapping to 10q25.2; Smc3 (mouse) mapping to 19 D2.

SOURCE

SMC3 (E-3) is a mouse monoclonal antibody raised against amino acids 811-1110 mapping near the C-terminus of SMC3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 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-376352 X, 200 µg/0.1 ml.

SMC3 (E-3) is available conjugated to agarose (sc-376352 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376352 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376352 PE), fluorescein (sc-376352 FITC), Alexa Fluor® 488 (sc-376352 AF488), Alexa Fluor® 546 (sc-376352 AF546), Alexa Fluor® 594 (sc-376352 AF594) or Alexa Fluor® 647 (sc-376352 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376352 AF680) or Alexa Fluor® 790 (sc-376352 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

SMC3 (E-3) is recommended for detection of SMC3 of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SMC3 (E-3) is also recommended for detection of SMC3 in additional species, including equine, canine, porcine and avian.

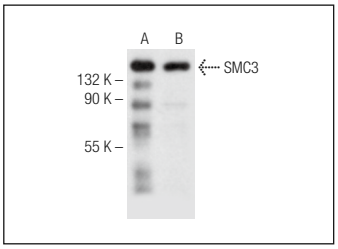
Suitable for use as control antibody for SMC3 siRNA (h): sc-38391, SMC3 siRNA (m): sc-38392, SMC3 shRNA Plasmid (h): sc-38391-SH, SMC3 shRNA Plasmid (m): sc-38392-SH, SMC3 shRNA (h) Lentiviral Particles: sc-38391-V and SMC3 shRNA (m) Lentiviral Particles: sc-38392-V.

SMC3 (E-3) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

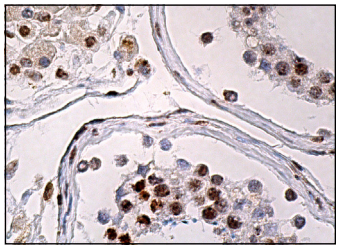
Molecular Weight of SMC3: 146 kDa.

Positive Controls: A-673 nuclear extract: sc-2128 or A-431 nuclear extract: sc-2122.

DATA



SMC3 (E-3): sc-376352. Western blot analysis of SMC3 expression in A-673 (**A**) and A-431 (**B**) nuclear extracts.



SMC3 (E-3): sc-376352. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of cells in seminiferous ducts.

SELECT PRODUCT CITATIONS

1. Schölz, C., et al. 2015. Acetylation site specificities of lysine deacetylase inhibitors in human cells. Nat. Biotechnol. 33: 415-423.
2. Zhao, B., et al. 2019. ARID1A promotes genomic stability through protecting telomere cohesion. Nat. Commun. 10: 4067.
3. Kim, B., et al. 2021. Neuronal activity-induced BRG1 phosphorylation regulates enhancer activation. Cell Rep. 36: 109357.
4. Kim, J.Y., et al. 2022. HDAC8-selective inhibition by PCI-34051 enhances the anticancer effects of ACY-241 in ovarian cancer cells. Int. J. Mol. Sci. 23: 8645.

STORAGE

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