SANTA CRUZ BIOTECHNOLOGY, INC.

p-SMC1 (5D11G5): sc-56746

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) along with SMC3 (also designated HCAP for human chromosome-associated protein or bamacan), and SMC2 (also designated hCAP-E) along 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 (called bamacan) which is expressed in testis and brain. Bamacan contains several glycosylation sites and is thought to play a role in basement membrane physiology.

REFERENCES

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 retino-pathy. J. Histochem. Cytochem. 44: 1469-1479.
4. Wu, R.R. and Couchman, J.R. 1997. cDNA cloning of the basement membrane chondroitin sulfate proteoglycan core protein, Bamacan: a five domain structure including coiled-coil motifs. J. Cell Biol. 136: 433-444.

CHROMOSOMAL LOCATION

Genetic locus: SMC1A (human) mapping to Xp11.22; Smc1a (mouse) mapping to X F3.

SOURCE

p-SMC1 (5D11G5) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to amino acids 951-962 of SMC1 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.

p-SMC1 (5D11G5) is available conjugated to agarose (sc-56746 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-56746 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56746 PE), fluorescein (sc-56746 FITC), Alexa Fluor® 488 (sc-56746 AF488), Alexa Fluor® 546 (sc-56746 AF546), Alexa Fluor® 594 (sc-56746 AF594) or Alexa Fluor® 647 (sc-56746 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56746 AF680) or Alexa Fluor® 790 (sc-56746 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

p-SMC1 (5D11G5) is recommended for detection of Ser 957 phosphorylated SMC1 of mouse, rat and 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); may minimally cross-react with the nonphosphorylated epitope.

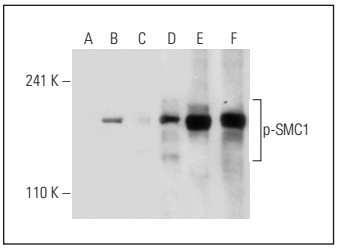
Molecular Weight of p-SMC1: 150 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or HeLa nuclear extract: sc-2120.

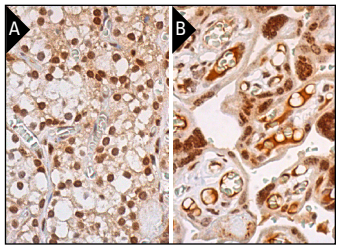
RECOMMENDED SUPPORT REAGENTS

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, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A 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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Western blot analysis of SMC1 phosphorylation in untreated (**A**,**D**), UV irradiated (**B**,**E**) and UV irradiated and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) HeLa whole cell lysates. Antibodies tested include p-SMC1 (5911G5): sc-56746 (**A**,**B**,**C**) and SMC1α (M-16): sc-30958 (**D**,**E**,**F**).



p-SMC1 (5911G5): sc-56746. Immunoperoxidase staining of formalin fixed, paraffin-embedded human parathyroid gland tissue showing nuclear staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing nuclear staining of trophoblastic cells (**B**).

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.