

p-SMC1 α (30.Ser 966): sc-135783

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 ubiquitously expressed in various human tissues, including thymus, testis and colon. SMC1 α phosphorylated on Ser 957 and 966 associates with chromatin during G₁/S/G₂ phases, but not during M-phase, suggesting that phosphorylation does not regulate cohesion function. However, phosphorylation of SMC1 α on Ser 957 and 966 is required for S-phase checkpoint activation.

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 retinopathy. *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.
5. Schmiesing, J.A., et al. 1998. Identification of two distinct human SMC protein complexes involved in mitotic chromosome dynamics. *Proc. Natl. Acad. Sci. USA* 95: 12906-12911.
6. Strunnikov, A.V. and Jessberger, R. 1999. Structural maintenance of chromosomes (SMC) proteins: conserved molecular properties for multiple biological functions. *Eur. J. Biochem.* 263: 6-13.

CHROMOSOMAL LOCATION

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

SOURCE

p-SMC1 α (30.Ser 966) is a mouse monoclonal antibody raised against a short amino acid sequence containing Ser 966 phosphorylated SMC1 α of mouse origin.

PRODUCT

Each vial contains 200 μ g IgG₁ 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-135783 X, 200 μ g/0.1 ml.

APPLICATIONS

p-SMC1 α (30.Ser 966) is recommended for detection of Ser 966 phosphorylated SMC1 α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SMC1 α siRNA (h): sc-38385, SMC1 α siRNA (m): sc-38386, SMC1 α shRNA Plasmid (h): sc-38385-SH, SMC1 α shRNA Plasmid (m): sc-38386-SH, SMC1 α shRNA (h) Lentiviral Particles: sc-38385-V and SMC1 α shRNA (m) Lentiviral Particles: sc-38386-V.

p-SMC1 α (30.Ser 966) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

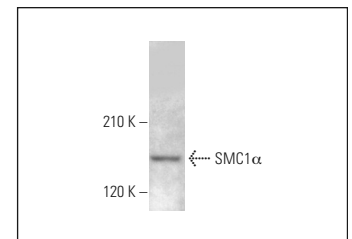
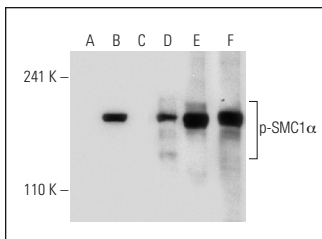
Molecular Weight of p-SMC1 α : 155 kDa.

Positive Controls: HeLa + UV irradiated cell lysate: sc-2221 or Neuro-2A whole cell lysate: sc-364185.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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).

DATA



Western blot analysis of SMC1 α 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 α (30.Ser 966): sc-135783 (A,B,C) and SMC1 α (M-16): sc-30958 (D,E,F).

p-SMC1 α (30.Ser 966): sc-135783. Western blot analysis of SMC1 α phosphorylation in Neuro-2A 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. Not for resale.

PROTOCOLS

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