

p-SMC1 (Ser 957): sc-68746

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 Bama-can), 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 ubiquitously 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 Bama-can), which is expressed in testis and brain. Bama-can contains several glycosylation sites and is thought to play a role in basement membrane physiology. Human and mouse SMC1 are subject to phosphorylation on specific amino acid residues, such as Ser 957, which may activate SMC1 activity.

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, Bama-can: 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.
7. Nishiwaki, T., et al. 1999. Isolation and characterization of a human cDNA homologous to the *Xenopus laevis* XCAP-C gene belonging to the structural maintenance of chromosomes (SMC) family. *J. Hum. Genet.* 4: 197-202.
8. Ghiselli, G., et al. 1999. Complete cDNA cloning, genomic organization, chromosomal assignment, functional characterization of the promoter, and expression of the murine Bama-can gene. *J. Biol. Chem.* 274: 17384-17393.

CHROMOSOMAL LOCATION

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

STORAGE

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

SOURCE

p-SMC1 (Ser 957) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 957 phosphorylated SMC1 of human origin.

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-68746 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-SMC1 (Ser 957) is recommended for detection of Ser 957 phosphorylated SMC1 of human, mouse and, to a lesser extent, rat origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-SMC1 (Ser 957) is also recommended for detection of correspondingly phosphorylated SMC1 in additional species, including canine and bovine.

Suitable for use as control antibody for p-SMC1 siRNA (h): sc-92427, p-SMC1 siRNA (m): sc-152556, p-SMC1 shRNA Plasmid (h): sc-92427-SH, p-SMC1 shRNA Plasmid (m): sc-152556-SH, p-SMC1 shRNA (h) Lentiviral Particles: sc-92427-V and p-SMC1 shRNA (m) Lentiviral Particles: sc-152556-V.

Molecular Weight of p-SMC1: 150 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 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.

RESEARCH USE

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

PROTOCOLS

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