

# SMC3 (A-7): sc-365540

## 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. 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.

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

## SOURCE

SMC3 (A-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1163-1188 at the C-terminus of SMC3 of rat origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>3</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365540 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

SMC3 (A-7) is recommended for detection of SMC3 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

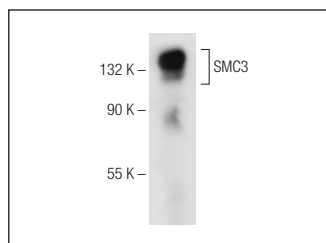
Molecular Weight of SMC3: 146 kDa.

Positive Controls: SJRH30 cell lysate: sc-2287, A-673 nuclear extract: sc-2128 or A-431 nuclear extract: sc-2122.

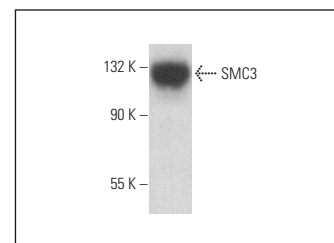
## RECOMMENDED SUPPORT REAGENTS

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



SMC3 (A-7): sc-365540. Western blot analysis of SMC3 expression in A-673 nuclear extract.



SMC3 (A-7): sc-365540. Western blot analysis of SMC3 expression in SJRH30 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.