SANTA CRUZ BIOTECHNOLOGY, INC.

SMC3 (R-19): sc-8198

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.

REFERENCES

1. Rocques, P.J., Clark, J., Ball, S., Crew, J., Gill, S., Christoldoulou, Z., Borts, R.H., Louis, E.J., Davies, K.E. and Cooper, C.S. 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.
2. Ljubimov, A.V., Burgeson, R.E., Butkowski, R.J., Couchman, J.R., Zardi, L., inomiya, Y., Sado, Y., Huang, Z.S., Nesburn, A.B. and Kenny, M.C. 1996. Basement membrane abnormalities in human eyes with diabetic retinopathy. J. Histochem. Cytochem. 44: 1469-1479.
3. 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.
4. Shimizu, K., Shirataki, H., Honda, T., Minami, S. and Takai, Y. 1998. Complex formation of SMAP/KAP3, a KIF3A/B ATPase motor-associated protein, with a human chromosome-associated polypeptide. J. Biol. Chem. 273: 6591-6594.

CHROMOSOMAL LOCATION

Genetic locus: CSPG6 (human) mapping to 10q25.2; Cspg6 (mouse) mapping to 19 D2.

SOURCE

SMC3 (R-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of SMC3 of rat origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8198 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

SMC3 (R-19) 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.

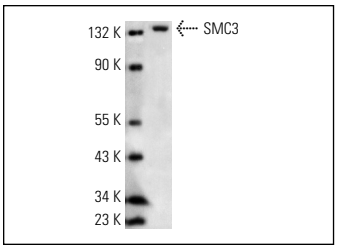
Molecular Weight of SMC3: 146 kDa.

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

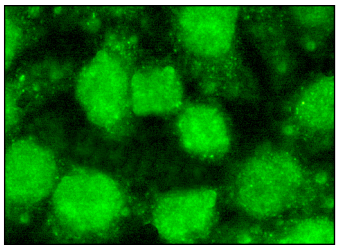
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



SMC3 (R-19): sc-8198. Western blot analysis of SMC3 expression in A-673 nuclear extract.



SMC3 (R-19): sc-8198. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear staining.

SELECT PRODUCT CITATIONS

1. Kliszczak, A.E., Rainey, M.D., Harhen, B., Boisvert, F.M. and Santocanale, C. 2011. DNA mediated chromatin pull-down for the study of chromatin replication. Sci. Rep. 1: 95.