

SMC5 (B-11): sc-393282

BACKGROUND

Breaks in double stranded DNA often arise during DNA replication or as a result of exposure to DNA-damaging agents. Quick and accurate repair of these breaks is crucial for cell survival and genomic stability. Structural maintenance of chromosomes (SMC) family members form heterodimeric complexes that modulate sister chromatid cohesion and chromosome condensation during mitosis. Two distinct SMC protein complexes are the SMC1/SMC3 heterodimer and the SMC2/SMC4 heterodimer. SMC5 and SMC6 play a crucial role in DNA repair as they form a complex that, along with SUMO ligase, is also important in preventing DNA damage-induced apoptosis. This complex made up of SMC5 and SMC6 is crucial for sister chromatid homologous recombination DNA repair and also for prevention of chromosomal rearrangements.

REFERENCES

1. Lehmann, A.R. 2005. The role of SMC proteins in the responses to DNA damage. *DNA Repair* 4: 309-314.
2. Lee, K.M. and O'Connell, M.J. 2005. A new SUMO ligase in the DNA damage response. *DNA Repair* 5: 138-141.
3. Potts, P.R. and Yu, H. 2005. Human MMS21/NSE2 is a SUMO ligase required for DNA repair. *Mol. Cell. Biol.* 25: 7021-7032.
4. Watanabe, Y. 2005. The importance of being SMC5/6. *Nat. Cell Biol.* 7: 329-331.

CHROMOSOMAL LOCATION

Genetic locus: SMC5 (human) mapping to 9q21.12; Smc5 (mouse) mapping to 19 B.

SOURCE

SMC5 (B-11) is a mouse monoclonal antibody raised against amino acids 901-1090 mapping near the C-terminus of SMC5 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} 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-393282 X, 200 µg/0.1 ml.

SMC5 (B-11) is available conjugated to agarose (sc-393282 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393282 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393282 PE), fluorescein (sc-393282 FITC), Alexa Fluor[®] 488 (sc-393282 AF488), Alexa Fluor[®] 546 (sc-393282 AF546), Alexa Fluor[®] 594 (sc-393282 AF594) or Alexa Fluor[®] 647 (sc-393282 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-393282 AF680) or Alexa Fluor[®] 790 (sc-393282 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

SMC5 (B-11) is recommended for detection of SMC5 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 SMC5 siRNA (h): sc-61563, SMC5 siRNA (m): sc-61564, SMC5 shRNA Plasmid (h): sc-61563-SH, SMC5 shRNA Plasmid (m): sc-61564-SH, SMC5 shRNA (h) Lentiviral Particles: sc-61563-V and SMC5 shRNA (m) Lentiviral Particles: sc-61564-V.

SMC5 (B-11) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

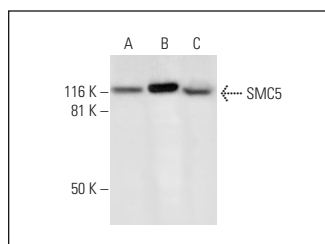
Molecular Weight of SMC5: 120 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 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, 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



SMC5 (B-11): sc-393282. Western blot analysis of SMC5 expression in HeLa (A) and Jurkat (B) whole cell lysates and HeLa nuclear extract (C).

SELECT PRODUCT CITATIONS

1. Rivière, L., et al. 2019. Hepatitis B virus replicating in hepatocellular carcinoma encodes HBx variants with preserved ability to antagonize restriction by SMC5/6. *Antiviral Res.* 7: 104618.
2. Rossi, F., et al. 2020. SMC5/6 acts jointly with Fanconi anemia factors to support DNA repair and genome stability. *EMBO Rep.* 21: e48222.

RESEARCH USE

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