SANTA CRUZ BIOTECHNOLOGY, INC.

SMC1α (K-20): sc-30960

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The Power to Question

BACKGROUND

The SMC (structural maintenance of chromosomes) family of proteins form heterodimeric complexes that modulate sister chromatid cohesion and chromosome condensation for mitosis. SMC1α (structural maintenance of chromosomes protein 1A), also known as SMC1, SMCB, CDLS2, SB1.8, SMC1L1 or DXS423E, is a 1,233 amino acid nuclear protein that is involved in chromosome cohesion during the cell cycle. SMC1α interacts with BRCA1 and is phosphorylated by ATM, indicating a potential role in DNA repair. SMC1α is a component of the cohesion complex, which is required for the cohesion of sister chromatids after DNA replication. Mutations in the gene encoding SMC1α may be the cause of cornelia de lange syndrome (CdLS), which is a clinically heterogeneous developmental disorder characterized by facial dysmorphia, upper limb malformations, growth and cognitive retardation.

REFERENCES

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2. 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.
3. Strunnikov, A.V., et al. 1999. Structural maintenance of chromosomes (SMC) proteins: conserved molecular properties for multiple biological functions. Eur. J. Biochem. 263: 6-13.
4. 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.
5. Deardorff, M.A., et al. 2007. Mutations in cohesin complex members SMC3 and SMC1A cause a mild variant of cornelia de Lange syndrome with predominant mental retardation. Am. J. Hum. Genet. 80: 485-494.
6. Olioso, G., et al. 2009. Clinical problems and everyday abilities of a group of Italian adolescent and young adults with Cornelia de Lange syndrome. Am. J. Med. Genet. A 149A: 2532-2537.
7. Liu, J., et al. 2009. Cornelia de Lange syndrome, cohesin, and beyond. Clin. Genet. 76: 303-314.
8. Revenkova, E., et al. 2009. Cornelia de Lange syndrome mutations in SMC1A or SMC3 affect binding to DNA. Hum. Mol. Genet. 18: 418-427.
9. Mannini, L., et al. 2010. Spectrum and consequences of SMC1A mutations: the unexpected involvement of a core component of cohesin in human disease. Hum. Mutat. 31: 5-10.

CHROMOSOMAL LOCATION

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

SOURCE

SMC1α (K-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SMC1α of human 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-30960 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SMC1α (K-20) is recommended for detection of SMC1α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

SMC1α (K-20) is also recommended for detection of SMC1α in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for SMC1α siRNA (h): sc-38385, SMC1α siRNA (m): sc-38386, SMC1α shRNA Plasmid (h): sc-38385-SH, SMC1α shRNA Plasmid (m): sc-38386-SH, SMC1α shRNA (h) Lentiviral Particles: sc-38385-V and SMC1α shRNA (m) Lentiviral Particles: sc-38386-V.

Molecular Weight of SMC1α: 155 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, K-562 nuclear extract: sc-2130 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) 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.

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.