SANTA CRUZ BIOTECHNOLOGY, INC.

NSE1 (P-12): sc-132009

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. SMC5 and SMC6 play a crucial role in DNA repair as they form a complex with six conserved non-SMC subunits, including a ubiquitin E3 ligase, NSE1, and a SUMO ligase, NSE2. Specifically, this complex is crucial for sister chromatid homologous recombination DNA repair and also for prevention of chromosomal rearrangements. The NSE1 protein contains a RING-like motif that promotes DNA repair functions of the SMC5/SMC6 complex, and full deletion of NSE1 is lethal to cells. NSE2 stimulates sumoylation of SMC6 and the DNA repair protein TRAX. Depletion of the NSE2 protein by RNA interference leaves the cell vulnerable to DNA damage-induced apoptosis.

REFERENCES

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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.
5. Eydmann, T., et al. 2005. SMC5 and SMC6 genes are required for the segregation of repetitive chromosome regions. Nat. Cell Biol. 7: 412-419.
6. De Piccoli, G., et al. 2006. SMC5-SMC6 mediate DNA double-strand-break repair by promoting sister-chromatid recombination. Nat. Cell Biol. 8: 1032-1034.
7. Lindroos, H.B., et al. 2006. Chromosomal association of the SMC5/6 complex reveals that it functions in differently regulated pathways. Mol. Cell 22: 755-767.
8. Potts, P.R., et al. 2006. Human SMC5/6 complex promotes sister chromatid homologous recombination by recruiting the SMC1/3 cohesin complex to double-strand breaks. EMBO J. 25: 3377-3388.
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CHROMOSOMAL LOCATION

Genetic locus: NSMCE1 (human) mapping to 16p12.1; Nsmce1 (mouse) mapping to 7 F3.

SOURCE

NSE1 (P-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of NSE1 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-132009 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NSE1 (P-12) is recommended for detection of NSE1 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); non cross-reactive with family members NSE2 or NSE4A.

NSE1 (P-12) is also recommended for detection of NSE1 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for NSE1 siRNA (h): sc-93235, NSE1 siRNA (m): sc-150074, NSE1 shRNA Plasmid (h): sc-93235-SH, NSE1 shRNA Plasmid (m): sc-150074-SH, NSE1 shRNA (h) Lentiviral Particles: sc-93235-V and NSE1 shRNA (m) Lentiviral Particles: sc-150074-V.

Molecular Weight of NSE1: 31 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

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.

PROTOCOLS

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