

# SNM1A (D-14): sc-160814

## BACKGROUND

DNA interstrand cross-links (ICLs) pose lethal threats to DNA as they inhibit segregation, replication and transcription. The mechanism of ICL repair is complex but is at least partly conserved between *Saccharomyces cerevisiae* and mammals. SNM1A, also known as DCLRE1A (DNA cross-link repair 1A (PSO2 homolog, *S. cerevisiae*)), PSO2 or SNM1, is a 1,040 amino acid nuclear protein involved in DNA interstrand cross-link repair. A member of the DNA repair metallo- $\beta$ -lactamase (DRMBL) family, SNM1A is expressed in placenta, pancreas, skeletal muscle, kidney, liver, heart and brain. SNM1A is required for genome stability and functions downstream of ATM in the G<sub>1</sub> cell cycle checkpoint where it is essential for G<sub>1</sub> arrest following ionizing radiation and colocalizes with 53BP1 (tumor protein p53 binding protein 1).

## REFERENCES

- Nagase, T., Miyajima, N., Tanaka, A., Sazuka, T., Seki, N., Sato, S., Tabata, S., Ishikawa, K., Kawarabayasi, Y. and Kotani, H. 1995. Prediction of the coding sequences of unidentified human genes. III. The coding sequences of 40 new genes (KIAA0081-KIAA0120) deduced by analysis of cDNA clones from human cell line KG-1. *DNA Res.* 2: 37-43.
- Demuth, I. and Digweed, M. 1998. Genomic organization of a potential human DNA-crosslink repair gene, KIAA0086. *Mutat. Res.* 409: 11-16.
- Dronkert, M.L., de Wit, J., Boeve, M., Vasconcelos, M.L., van Steeg, H., Tan, T.L., Hoeijmakers, J.H. and Kanaar, R. 2000. Disruption of mouse SNM1 causes increased sensitivity to the DNA interstrand cross-linking agent mitomycin C. *Mol. Cell. Biol.* 20: 4553-4561.
- Richie, C.T., Peterson, C., Lu, T., Hittelman, W.N., Carpenter, P.B. and Legerski, R.J. 2002. hSnm1 colocalizes and physically associates with 53BP1 before and after DNA damage. *Mol. Cell. Biol.* 22: 8635-8647.
- Akhter, S. and Legerski, R.J. 2008. SNM1A acts downstream of ATM to promote the G<sub>1</sub> cell cycle checkpoint. *Biochem. Biophys. Res. Commun.* 377: 236-241.
- Hemphill, A.W., Bruun, D., Thrun, L., Akkari, Y., Torimaru, Y., Hejna, K., Jakobs, P.M., Hejna, J., Jones, S., Olson, S.B. and Moses, R.E. 2008. Mammalian SNM1 is required for genome stability. *Mol. Genet. Metab.* 94: 38-45.

## CHROMOSOMAL LOCATION

Genetic locus: DCLRE1A (human) mapping to 10q25.3; Dclre1a (mouse) mapping to 19 D2.

## SOURCE

SNM1A (D-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SNM1A of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-160814 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

SNM1A (D-14) is recommended for detection of SNM1A of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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); non cross-reactive with SNM1 or SNM1B.

SNM1A (D-14) is also recommended for detection of SNM1A in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for SNM1A siRNA (h): sc-90489, SNM1A siRNA (m): sc-153656, SNM1A shRNA Plasmid (h): sc-90489-SH, SNM1A shRNA Plasmid (m): sc-153656-SH, SNM1A shRNA (h) Lentiviral Particles: sc-90489-V and SNM1A shRNA (m) Lentiviral Particles: sc-153656-V.

Molecular Weight of SNM1A: 116 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, NIH/3T3 nuclear extract: sc-2138 or SK-BR-3 nuclear extract: sc-2134.

## 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.

## 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) or our catalog for detailed protocols and support products.