SANTA CRUZ BIOTECHNOLOGY, INC.

SNM1A siRNA (h): sc-90489

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 nuclealr protein involved in DNA interstrand cross-link repair. A member of the DNA repair metallo-β-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_1 cell cycle checkpoint where it is essential for G_1 arrest following ionizing radiation and colocalizes with 53BP1 (tumor protein p53 binding protein 1).

REFERENCES

1. Nagase, T., et al. 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.
2. Demuth, I., et al. 1998. Genomic organization of a potential human DNA-crosslink repair gene, KIAA0086. Mutat. Res. 409: 11-16.
3. Dronkert, M.L., et al. 2000. Disruption of mouse SNM1 causes increased sensitivity to the DNA interstrand cross-linking agent mitomycin C. Mol. Cell. Biol. 20: 4553-4561.
4. Richie, C.T., et al. 2002. hSnm1 colocalizes and physically associates with 53BP1 before and after DNA damage. Mol. Cell. Biol. 22: 8635-8647.
5. Akhter, S., et al. 2008. SNM1A acts downstream of ATM to promote the G_1 cell cycle checkpoint. Biochem. Biophys. Res. Commun. 377: 236-241.
6. Hemphill, A.W., et al. 2008. Mammalian SNM1 is required for genome stability. Mol. Genet. Metab. 94: 38-45.

CHROMOSOMAL LOCATION

Genetic locus: DCLRE1A (human) mapping to 10q25.3.

PRODUCT

SNM1A siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SNM1A shRNA Plasmid (h): sc-90489-SH and SNM1A shRNA (h) Lentiviral Particles: sc-90489-V as alternate gene silencing products.

For independent verification of SNM1A (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-90489A, sc-90489B and sc-90489C.

PROTOCOLS

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SNM1A siRNA (h) is recommended for the inhibition of SNM1A expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SNM1A gene expression knockdown using RT-PCR Primer: SNM1A (h)-PR: sc-90489-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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