

ATMIN siRNA (h): sc-105098

BACKGROUND

ATMIN (ATM/ATR-substrate Chk2-interacting Zn²⁺-finger protein) is a DNA damage response protein. It functions as a scaffold protein in the lesion-specific Rad51 focus forming pathway. In response to DNA methylating agents and persistent single stranded DNA gaps, ATMIN forms Rad51-containing foci for DNA repair. The ATMIN foci are MLH1-dependent. ATMIN is similar in structure and function to Mdt1. It consists of an N-terminal nucleic acid binding domain, a nuclear localization signal and a C-terminal SQ/TQ cluster domain (SCD). ATMIN interacts with the forkhead-associated (FHA) domain of Chk2 via its SCD and may be a substrate for ATM/ATR kinase. A lack in functional ATMIN results in impaired Rad51 focus formation and leads to increased DNA damage-induced apoptosis.

REFERENCES

1. Ishikawa, K., et al. 1998. Prediction of the coding sequences of unidentified human genes. VIII. 78 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 4: 307-313.
2. Pike, B.L., et al. 2004. Mdt1, a novel Rad53 FHA1 domain-interacting protein, modulates DNA damage tolerance and G₂/M cell cycle progression in *Saccharomyces cerevisiae*. Mol. Cell. Biol. 24: 2779-2788.
3. Traven, A. and Heierhorst, J. 2005. SQ/TQ cluster domains: concentrated ATM/ATR kinase phosphorylation site regions in DNA-damage-response proteins. Bioessays 27: 397-407.
4. McNees, C.J., et al. 2005. ASCIZ regulates lesion-specific Rad51 focus formation and apoptosis after methylating DNA damage. EMBO J. 24: 2447-2457.

CHROMOSOMAL LOCATION

Genetic locus: ATMIN (human) mapping to 16q23.2.

PRODUCT

ATMIN 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ATMIN shRNA Plasmid (h): sc-105098-SH and ATMIN shRNA (h) Lentiviral Particles: sc-105098-V as alternate gene silencing products.

For independent verification of ATMIN (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-105098A, sc-105098B and sc-105098C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ATMIN siRNA (h) is recommended for the inhibition of ATMIN 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 μ M in 66 μ l. 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.

GENE EXPRESSION MONITORING

ATMIN (E-12): sc-373833 is recommended as a control antibody for monitoring of ATMIN gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ATMIN gene expression knockdown using RT-PCR Primer: ATMIN (h)-PR: sc-105098-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Velichko, A.K., et al. 2019. Hypoosmotic stress induces R loop formation in nucleoli and ATR/ATM-dependent silencing of nucleolar transcription. Nucleic Acids Res. 47: 6811-6825.

RESEARCH USE

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

PROTOCOLS

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