ATRX siRNA (h): sc-37704



The Power to Question

BACKGROUND

ATRX is a member of the SNF2 family of helicase/ATPases, which contribute to the remodeling of the nucelosome structure in an ATP-dependent manner, and facilitate the initiation of transcription and replication. Structurally, ATRX contains a PHD zinc finger motif. ATRX is regulated throughout the cell cycle where it is differentially distributed within the nucleus. During interphase, ATRX predominately associates with the nuclear matrix, while during mitosis, ATRX localizes with condensed chromatin. At the onset of M phase, phosphorylation rapidly induces this redistribution of ATRX to the short arms of human acrocentric chromosomes, where it then specifically complexes with heterochromatin protein 1 α to mediate chromosomal segregation. Mutations in the ATRX gene correlate with a high incidence of severe X-linked form of syndromal mental retardation associated with α thalassaemia or ATR-X syndrome.

REFERENCES

- 1. Picketts, D.J., et al. 1996. ATRX encodes a novel member of the SNF2 family of proteins: mutations point to a common mechanism underlying the ATRX syndrome. Hum. Mol. Genet. 5: 1899-1907.
- Villard, L., et al. 1997. Determination of the genomic structure of the XNP/ATRX gene encoding a potential zinc finger helicase. Genomics 43: 149-155.
- Fichera, M., et al. 1998. New mutations in XNP/ATRX gene: a further contribution to genotype/phenotype relationship in ATRX syndrome. Mutations in brief no. 176. Online. Hum. Mutat. 12: 214.
- McDowell, T.L., et al. 1999. Localization of a putative transcriptional regulator (ATRX) at pericentromeric heterochromatin and the short arms of acrocentric chromosomes. Proc. Natl. Acad. Sci. USA 96: 13983-13988.
- Cardoso, C., et al. 2000. ATRX mutations cause impaired nuclear location and altered DNA binding properties of the XNP/ATRX protein. J. Med. Genet. 37: 746-751.
- Berube, N.G., et al. 2000. Cell cycle-dependent phosphorylation of the ATRX protein correlates with changes in nuclear matrix and chromatin association. Hum. Mol. Genet. 9: 539-547.

CHROMOSOMAL LOCATION

Genetic locus: ATRX (human) mapping to Xq21.1.

PRODUCT

ATRX 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 ATRX shRNA Plasmid (h): sc-37704-SH and ATRX shRNA (h) Lentiviral Particles: sc-37704-V as alternate gene silencing products.

For independent verification of ATRX (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-37704A, sc-37704B and sc-37704C.

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

ATRX siRNA (h) is recommended for the inhibition of ATRX 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.

GENE EXPRESSION MONITORING

ATRX (D-5): sc-55584 is recommended as a control antibody for monitoring of ATRX 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-lgG κ BP-HRP: sc-516102 or m-lgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-lgG κ BP-FITC: sc-516140 or m-lgG 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 ATRX gene expression knockdown using RT-PCR Primer: ATRX (h)-PR: sc-37704-PR (20 μ l, 461 bp). 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.

PROTOCOLS

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

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