SANTA CRUZ BIOTECHNOLOGY, INC.

Histone $H1^0$ siRNA (m): sc-62461

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The Power to Question

BACKGROUND

Eukaryotic histones are basic and water soluble nuclear proteins that form hetero-octameric nucleosome particles by wrapping 146 base pairs of DNA in a left-handed super-helical turn sequentially to form chromosomal fiber. Two molecules of each of the four core histones (H2A, H2B, H3 and H4) form the octamer; formed of two H2A-H2B dimers and two H3-H4 dimers, forming two nearly symmetrical halves by tertiary structure. Over 80% of nucleosomes contain the linker Histone H1, derived from an intronless gene, that interacts with linker DNA between nucleosomes and mediates compaction into higher order chromatin. Histones are subject to posttranslational modification by enzymes primarily on their N-terminal tails, but also in their globular domains. Such modifications include methylation, citrullination, acetylation, phosphorylation, sumoylation, ubiquitination and ADP-ribosylation.

REFERENCES

1. Rupp, R.A., et al. 2005. Gene regulation by Histone H1: new links to DNA methylation. Cell 123: 1178-1179.
2. Martin, C., et al. 2005. The diverse functions of histone lysine methylation. Nat. Rev. Mol. Cell Biol. 6: 838-849.
3. Gunjan, A., et al. 2005. Regulation of histone synthesis and nucleosome assembly. Biochimie 87: 625-635.
4. Bode, A.M., et al. 2005. Inducible covalent posttranslational modification of Histone H3. Sci. STKE 2005: re4.
5. Bustin, M., et al. 2005. The dynamics of Histone H1 function in chromatin. Mol. Cell 17: 617-620.
6. de la Cruz, X., et al. 2005. Do protein motifs read the histone code? Bioessays 27: 164-175.
7. Hake, S.B., et al. 2006. Histone H3 variants and their potential role in indexing mammalian genomes: the "H3 barcode hypothesis". Proc. Natl. Acad. Sci. USA 103: 6428-6435.
8. Nightingale, K.P., et al. 2006. Histone modifications: signalling receptors and potential elements of a heritable epigenetic code. Curr. Opin. Genet. Dev. 16: 125-136.

CHROMOSOMAL LOCATION

Genetic locus: H1f0 (mouse) mapping to 15 E1.

PRODUCT

Histone $H1^0$ siRNA (m) 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 Histone $H1^0$ shRNA Plasmid (m): sc-62461-SH and Histone $H1^0$ shRNA (m) Lentiviral Particles: sc-62461-V as alternate gene silencing products.

For independent verification of Histone $H1^0$ (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62461A, sc-62461B and sc-62461C.

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

Histone $H1^0$ siRNA (m) is recommended for the inhibition of Histone $H1^0$ expression in mouse 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

Histone $H1^0$ (34): sc-56695 is recommended as a control antibody for monitoring of Histone $H1^0$ 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Histone $H1^0$ gene expression knockdown using RT-PCR Primer: Histone $H1^0$ (m)-PR: sc-62461-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, C., et al. 2018. PARP1 promote autophagy in cardiomyocytes via modulating FoxO3a transcription. Cell Death Dis. 9: 1047.

RESEARCH USE

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