SANTA CRUZ BIOTECHNOLOGY, INC.

HDAC7 siRNA (m): sc-35547

BACKGROUND

In the intact cell, DNA closely associates with histones and other nuclear proteins to form chromatin. The remodeling of chromatin is believed to be a critical component of transcriptional regulation and a major source of this remodeling is brought about by the acetylation of nucleosomal histones. Acetylation of lysine residues in the amino terminal tail domain of histone results in an allosteric change in the nucleosomal conformation and an increased accessibility to transcription factors by DNA. Conversely, the deacetylation of histones is associated with transcriptional silencing. Several mammalian proteins have been identified as nuclear histone acetylases, including GCN5, PCAF (p300/CBP-associated factor), p300/CBP, HAT1, and the TFIID subunit TAF II p250. Mammalian HDAC7 is a histone deacetylase that interacts with the adaptor mSin3A. The interaction of HDAC7 with mSin3A suggests the association of multiple repression complexes of transcription factors.

REFERENCES

1. Lee, D.Y., et al. 1993. A positive role for histone acetylation in transcription factor access to nucleosomal DNA. Cell 72: 73-82.
2. Braunstein, M., et al. 1993. Transcriptional silencing in yeast is associated with reduced nucleosome acetylation. Genes Dev. 7: 592-604.
3. Bauer, W.R., et al. 1994. Nucleosome structural changes due to acetylation. J. Mol. Biol. 236: 685-690.
4. Utley, R.T., et al. 1998. Transcriptional activators direct histone acetyltransferase complexes to nucleosomes. Nature 394: 498-502.
5. Verreault, A., et al. 1998. Nucleosomal DNA regulates the core-histone-binding subunit of the human Hat1 acetyltransferase. Curr. Biol. 8: 96-108.
6. Kao, H.Y., et al. 2000. Isolation of a novel histone deacetylase reveals that class I and class II deacetylases promote SMRT-mediated repression. Genes Dev. 14: 55-66.

CHROMOSOMAL LOCATION

Genetic locus: Hdac7 (mouse) mapping to 15 F1.

PRODUCT

HDAC7 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 HDAC7 shRNA Plasmid (m): sc-35547-SH and HDAC7 shRNA (m) Lentiviral Particles: sc-35547-V as alternate gene silencing products.

For independent verification of HDAC7 (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-35547A, sc-35547B and sc-35547C.

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

HDAC7 siRNA (m) is recommended for the inhibition of HDAC7 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HDAC7 gene expression knockdown using RT-PCR Primer: HDAC7 (m)-PR: sc-35547-PR (20 µl, 328 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Margariti, A., et al. 2009. Splicing of HDAC7 modulates the SRF-myocardin complex during stem-cell differentiation towards smooth muscle cells. J. Cell Sci. 122: 460-470.
2. Xiong, C., et al. 2019. Selective inhibition of class IIa histone deacetylases alleviates renal fibrosis. FASEB J. 33: 8249-8262.
3. Rahm, A.K., et al. 2021. Differential regulation of K_{Ca} 2.1 (KCNN1) K^+ channel expression by histone deacetylases in atrial fibrillation with concomitant heart failure. Physiol. Rep. 9: e14835.

RESEARCH USE

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