SANTA CRUZ BIOTECHNOLOGY, INC.

HDAC6 siRNA (m): sc-35545

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 HDAC1 (also designated HD1), HDAC2 (also designated RPD3) and HDAC3-6, have been identified as histone deacetylases.

REFERENCES

1. Lee, D.Y., et al. 1993. A positive role for histone acetylation in transcription factor access to nucleosomal DNA. Cell 72: 73-84.
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. Taunton, J., et al. 1996. A mammalian histone deacetylase related to the yeast transcriptional regulator Rpd3p. Science 272: 408-411.
5. Utley, R.T., et al. 1998. Transcriptional activators direct histone acetyltransferase complexes to nucleosomes. Nature 394: 498-502.

CHROMOSOMAL LOCATION

Genetic locus: Hdac6 (mouse) mapping to X A1.1.

PRODUCT

HDAC6 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 HDAC6 shRNA Plasmid (m): sc-35545-SH and HDAC6 shRNA (m) Lentiviral Particles: sc-35545-V as alternate gene silencing products.

For independent verification of HDAC6 (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-35545A, sc-35545B and sc-35545C.

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

HDAC6 siRNA (m) is recommended for the inhibition of HDAC6 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 HDAC6 gene expression knockdown using RT-PCR Primer: HDAC6 (m)-PR: sc-35545-PR (20 µl, 467 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zilberman, Y., et al. 2009. Regulation of microtubule dynamics by inhibition of the Tubulin deacetylase HDAC6. J. Cell Sci. 122: 3531-3541.
2. Zhu, Q.Y., et al. 2011. C6-ceramide synergistically potentiates the antitumor effects of histone deacetylase inhibitors via Akt dephosphorylation and α-Tubulin hyperacetylation both *in vitro* and *in vivo*. Cell Death Dis. 2: e117.
3. Nguyen, A.M., et al. 2015. The primary cilium is a self-adaptable, integrating nexus for mechanical stimuli and cellular signaling. Biol. Open 4: 1733-1738.
4. Sen, T., et al. 2018. Nitrosylation of GAPDH augments pathological Tau acetylation upon exposure to Amyloid-β. Sci. Signal. 11: eaao6765.
5. 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.
6. Kumar, A. and Datta, M. 2022. H19 inhibition increases HDAC6 and regulates IRS1 levels and insulin signaling in the skeletal muscle during diabetes. Mol. Med. 28: 81.
7. Kim, E.Y., et al. 2023. Dysfunction in parkin aggravates inflammatory bone erosion by reinforcing osteoclast activity. Cell Biosci. 13: 48.

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.