SANTA CRUZ BIOTECHNOLOGY, INC.

HDAC9 siRNA (m): sc-35551

BACKGROUND

In the intact cell, DNA closely associates with histones and other nuclear proteins to form chromatin. The remodeling of chromatin is a critical component of transcriptional regulation and the acetylation of nucleosomal histones is a major source of this remodeling. 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. Several mammalian proteins function as nuclear histone acetylases, including GCN5, PCAF (p300/CBP-associated factor), p300/CBP, HAT1 and the TFIID subunit TAF II p250 . Conversely, the deacetylation of histones is associated with transcriptional silencing. The histone deacetylases (HDAC) include HDAC1-9. HDAC9 and HDAC9a are two alternatively spliced isoforms of HDAC9. HDAC9a is 132 amino acids shorter than HDAC9, but both isoforms contain the HDAC catalytic domain, remain capable of deacetylase activity and repress myoctye enhancer-binding factor 2-mediated transcription. HDAC9 and HDAC9a are expressed in brain, skeletal muscle, kidney, placenta and pancreas.

REFERENCES

1. Braunstein, M., et al. 1993. Transcriptional silencing in yeast is associated with reduced nucleosome acetylation. Genes Dev. 7: 592-604.
2. Lee, D.Y., et al. 1993. A positive role for histone acetylation in transcription factor access to nucleosomal DNA. Cell 72: 73-82.

CHROMOSOMAL LOCATION

Genetic locus: Hdac9 (mouse) mapping to 12 A3.

PRODUCT

HDAC9 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 HDAC9 shRNA Plasmid (m): sc-35551-SH and HDAC9 shRNA (m) Lentiviral Particles: sc-35551-V as alternate gene silencing products.

For independent verification of HDAC9 (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-35551A, sc-35551B and sc-35551C.

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

HDAC9 siRNA (m) is recommended for the inhibition of HDAC9 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

HDAC9 (B-1): sc-398003 is recommended as a control antibody for monitoring of HDAC9 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HDAC9 gene expression knockdown using RT-PCR Primer: HDAC9 (m)-PR: sc-35551-PR (20 µl, 488 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Weems, J., et al. 2011. Class II histone deacetylases limit Glut4 gene expression during adipocyte differentiation. J. Biol. Chem. 286: 460-468.
2. Aizawa, S., et al. 2012. Histone deacetylase 9 as a negative regulator for choline acetyltransferase gene in NG108-15 neuronal cells. Neuroscience 205: 63-72.
3. Lu, S., et al. 2018. HDAC9 promotes brain ischemic injury by provoking IκBα/NFκB and MAPKs signaling pathways. Biochem. Biophys. Res. Commun. 503: 1322-1329.
4. Xiong, C., et al. 2019. Selective inhibition of class IIa histone deacetylases alleviates renal fibrosis. FASEB J. 33: 8249-8262.
5. Zhang, L., et al. 2020. Impaired autophagy triggered by HDAC9 in mesenchymal stem cells accelerates bone mass loss. Stem Cell Res. Ther. 11: 269.
6. 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.

PROTOCOLS

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