SANTA CRUZ BIOTECHNOLOGY, INC.

HDAC11 siRNA (h): sc-106896

BACKGROUND

Histone deacetylases (HDACs) play an important role in the modification of chromatin structure and thus in the suppression and activation of transcription and cellular differentiation. There are 11 members in the HDAC family that are classified into 4 classes. Class I HDACs represent homologs of the yeast histone deacetylase Rpd3, class II HDACs share strong homology with the yeast histone deacetylase HDA1, class III HDAC are closely related to the yeast Sir2 protein and class IV HDACs comprises histone deacetylase 11 (HDAC11)-related enzymes. HDAC11 contains 347 amino acid residues. HDAC11 contains conserved residues in the catalytic core regions shared by both class I and II mammalian HDAC enzymes. Expression of HDAC11 is high in the kidney, heart, brain, skeletal muscle and testis, and it localizes to the cell nucleus. The human gene encoding for HDAC11 maps to chromosome 3p25.1.

REFERENCES

1. Gao, L., et al. 2002. Cloning and functional characterization of HDAC11, a novel member of the human histone deacetylase family. J. Biol. Chem. 277: 25748-25755.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607226. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Gregoretti, I.V., et al. 2004. Molecular evolution of the histone deacetylase family: functional implications of phylogenetic analysis. J. Mol. Biol. 338: 17-31.
4. Voelter-Mahlknecht, S., et al. 2005. Chromosomal organizatio deacetylase 11 gene. Int. J. Mol. Med. 16: 589-598.

CHROMOSOMAL LOCATION

Genetic locus: HDAC11 (human) mapping to 3p25.1.

PRODUCT

HDAC11 siRNA (h) is a pool of 2 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 HDAC11 shRNA Plasmid (h): sc-106896-SH and HDAC11 shRNA (h) Lentiviral Particles: sc-106896-V as alternate gene silencing products.

For independent verification of HDAC11 (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-106896A and sc-106896B.

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

HDAC11 siRNA (h) is recommended for the inhibition of HDAC11 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

HDAC11 (C-5): sc-390737 is recommended as a control antibody for monitoring of HDAC11 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 HDAC11 gene expression knockdown using RT-PCR Primer: HDAC11 (h)-PR: sc-106896-PR (20 µl, 494 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, F.H., et al. 2017. Vitamin D_3 induces vitamin D receptor and HDAC11 binding to relieve the promoter of the tight junction proteins. Oncotarget 8: 58781-58789.
2. Dong, N., et al. 2018. EGF-mediated overexpression of Myc attenuates miR-26b by recruiting HDAC3 to induce epithelial-mesenchymal transition of lens epithelial cells. Biomed Res. Int. 2018: 7148023.
3. Yang, H., et al. 2019. Probiotics ingestion prevents HDAC11-induced DEC205$^+$ dendritic cell dysfunction in night shift nurses. Sci. Rep. 9: 18002.
4. Bora-Singhal, N., et al. 2020. Novel HDAC11 inhibitors suppress lung adenocarcinoma stem cell self-renewal and overcome drug resistance by suppressing Sox2. Sci. Rep. 10: 4722.

RESEARCH USE

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