SANTA CRUZ BIOTECHNOLOGY, INC.

HDAC3 siRNA (h): sc-35538

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 (for p300/CBP-associated factor), p300/CBP and the TFIID subunit TAF II p250. Mammalian HDAC1 (also designated HD1), HDAC2 (also designated mammalian RPD3) and HDAC3, all of which are related to the yeast transcriptional regulator Rpd3p, have been identified as histone deacetylases.

CHROMOSOMAL LOCATION

Genetic locus: HDAC3 (human) mapping to 5q31.3.

PRODUCT

HDAC3 siRNA (h) is a target-specific 19-25 nt siRNA 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 HDAC3 shRNA Plasmid (h): sc-35538-SH and HDAC3 shRNA (h) Lentiviral Particles: sc-35538-V as alternate gene silencing 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

HDAC3 siRNA (h) is recommended for the inhibition of HDAC3 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

HDAC3 (A-3): sc-376957 is recommended as a control antibody for monitoring of HDAC3 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 HDAC3 gene expression knockdown using RT-PCR Primer: HDAC3 (h)-PR: sc-35538-PR (20 µl, 449 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, J., et al. 2007. Histone deacetylase inhibitors suppress TF-κB-dependent agonist-driven tissue factor expression in endothelial cells and monocytes. J. Biol. Chem. 282: 28408-28418.
2. Ye, C.G., et al. 2013. Epigenetic upregulation of Bak by ZBP-89 inhibits the growth of hepatocellular carcinoma. Biochim. Biophys. Acta 1833: 2970-2979.
3. Safronova, O.S., et al. 2014. Acute hypoxia affects P-TEFb through HDAC3 and HEXIM1-dependent mechanism to promote gene-specific transcriptional repression. Nucleic Acids Res. 42: 8954-8969.
4. Joshi, A.D., et al. 2015. Histone deacetylase inhibitors prevent pulmonary endothelial hyperpermeability and acute lung injury by regulating heat shock protein 90 function. Am. J. Physiol. Lung Cell. Mol. Physiol. 309: L1410-L1419.
5. Choi, S.Y., et al. 2016. Class I HDACs specifically regulate E-cadherin expression in human renal epithelial cells. J. Cell. Mol. Med. 20: 2289-2298.
6. Gatla, H.R., et al. 2017. Epigenetic regulation of interleukin-8 expression by class I HDAC and CBP in ovarian cancer cells. Oncotarget 8: 70798-70810.
7. Gong, P., et al. 2018. HDAC and Ku70 axis- an effective target for apoptosis induction by a new 2-cyano-3-oxo-1,9-dien glycyrrhetinic acid analogue. Cell Death Dis. 9: 623.
8. Huang, J., et al. 2019. Enhanced osteopontin splicing regulated by RUNX2 is HDAC-dependent and induces invasive phenotypes in NSCLC cells. Cancer Cell Int. 19: 306.
9. Gao, Y., et al. 2020. Acetylation-dependent regulation of PD-L1 nuclear translocation dictates the efficacy of anti-PD-1 immunotherapy. Nat. Cell Biol. 22: 1064-1075.
10. Huang, S., et al. 2021. Histone deacetylase 3 inhibition alleviates type 2 diabetes mellitus-induced endothelial dysfunction via Nrf2. Cell Commun. Signal. 19: 35.

RESEARCH USE

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