SANTA CRUZ BIOTECHNOLOGY, INC.

HDAC4 siRNA (h): sc-35540

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, p300/CBP, PCAF (p300/CBP associated factor), 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.

CHROMOSOMAL LOCATION

Genetic locus: HDAC4 (human) mapping to 2q37.3.

PRODUCT

HDAC4 siRNA (h) 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 HDAC4 shRNA Plasmid (h): sc-35540-SH and HDAC4 shRNA (h) Lentiviral Particles: sc-35540-V as alternate gene silencing products.

For independent verification of HDAC4 (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-35540A, sc-35540B and sc-35540C.

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

HDAC4 siRNA (h) is recommended for the inhibition of HDAC4 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

HDAC4 (A-4): sc-46672 is recommended as a control antibody for monitoring of HDAC4 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 HDAC4 gene expression knockdown using RT-PCR Primer: HDAC4 (h)-PR: sc-35540-PR (20 µl, 525 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jeon, E.J. and Lee, K.Y. 2006. Bone morphogenetic protein-2 stimulates RUNX2 acetylation. J. Biol. Chem. 281: 16502-16511.
2. Wilson, A.J., et al. 2008. HDAC4 promotes growth of colon cancer cells via repression of p21. Mol. Biol. Cell 19: 4062-4075.
3. Gupta, M., et al. 2009. Inhibition of histone deacetylase overcomes rapamycin-mediated resistance in diffuse large B-cell lymphoma by inhibiting Akt signaling through mTORC2. Blood 114: 2926-2935.
4. Sharma, P., et al. 2010. Transcriptional regulation of human osteopontin promoter by histone deacetylase inhibitor, trichostatin A in cervical cancer cells. Mol. Cancer 9: 178.
5. Lu, J., et al. 2014. Histone deacetylase 4 alters cartilage homeostasis in human osteoarthritis. BMC Musculoskelet. Disord. 15: 438.
6. Yue, F., et al. 2015. Blocking the association of HDAC4 with MAP1S accelerates autophagy clearance of mutant Huntingtin. Aging 7: 839-853.
7. Seo, S.K., et al. 2015. Selective inhibition of histone deacetylase 2 induces p53-dependent survivin downregulation through MDM2 proteasomal degradation. Oncotarget 6: 26528-26540.
8. Guida, N., et al. 2016. MC1568 inhibits thimerosal-induced apoptotic cell death by preventing HDAC4 up-regulation in neuronal cells and in rat prefrontal cortex. Toxicol. Sci. 154: 227-240.
9. Park, I.H., et al. 2016. Trichostatin A inhibits epithelial mesenchymal transition induced by TGF-β1 in airway epithelium. PLoS ONE 11: e0162058.
10. Kishore, A.H., et al. 2017. Prostaglandin dehydrogenase is a target for successful induction of cervical ripening. Proc. Natl. Acad. Sci. USA 114: E6427-E6436.
11. Yue, F., et al. 2017. Spermidine prolongs lifespan and prevents liver fibrosis and hepatocellular carcinoma by activating MAP1S-mediated autophagy. Cancer Res. 77: 2938-2951.
12. 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.

RESEARCH USE

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