SANTA CRUZ BIOTECHNOLOGY, INC.

GCN5 siRNA (h): sc-37946

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) and HDAC2 (also designated mammalian RPD3), both of which are related to the yeast transcriptional regulator Rpd3p, 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.

CHROMOSOMAL LOCATION

Genetic locus: KAT2A (human) mapping to 17q21.2.

PRODUCT

GCN5 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 GCN5 shRNA Plasmid (h): sc-37946-SH and GCN5 shRNA (h) Lentiviral Particles: sc-37946-V as alternate gene silencing products.

For independent verification of GCN5 (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-37946A, sc-37946B and sc-37946C.

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

GCN5 siRNA (h) is recommended for the inhibition of GCN5 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

GCN5 (A-11): sc-365321 is recommended as a control antibody for monitoring of GCN5 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 GCN5 gene expression knockdown using RT-PCR Primer: GCN5 (h)-PR: sc-37946-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. Kenneth, N.S., et al. 2007. TRRAP and GCN5 are used by c-Myc to activate RNA polymerase III transcription. Proc. Natl. Acad. Sci. USA 104: 14917-14922.
2. Liu, Y.L., et al. 2012. USP22 acts as an oncogene by the activation of BMI-1-mediated INK4a/ARF pathway and Akt pathway. Cell Biochem. Biophys. 62: 229-235.
3. Bertucci, P.Y., et al. 2013. Progesterone receptor induces Bcl-x expression through intragenic binding sites favoring RNA polymerase II elongation. Nucleic Acids Res. 41: 6072-6086.
4. Conacci-Sorrell, M., et al. 2014. Stress-induced cleavage of Myc promotes cancer cell survival. Genes Dev. 28: 689-707.
5. Xue, P., et al. 2016. Decreased MORF leads to prolonged endoplasmic reticulum stress in periodontitis-associated chronic inflammation. Cell Death Differ. 23: 1862-1872.
6. Ouyang, C., et al. 2020. Autophagic degradation of KAT2A/GCN5 promotes directional migration of vascular smooth muscle cells by reducing TUBA/α-Tubulin acetylation. Autophagy 16: 1753-1770.
7. Azam, S., et al. 2022. α-synuclein upregulates bim-mediated apoptosis by negatively regulating endogenous GCN5. Aging 14: 8292-8301.
8. González, D., et al. 2024. Epigenetic control of SOX9 gene by the histone acetyltransferase P300 in human Sertoli cells. Heliyon 10: e33173.

RESEARCH USE

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