



SUV39H1 siRNA (h): sc-38463

BACKGROUND

Distinct modifications of histone tails, such as acetylation, phosphorylation and methylation, regulate nuclear processes by organizing the chromatin into higher order structures. Higher-order chromatin influences chromosome function and epigenetic gene regulation. Human and murine SUV39H1 are mammalian homologues of *Drosophila* Su(var)3-9 and of *Schizosaccharomyces pombe* clr4, which encode Histone H3-specific methyltransferases. SUV39H1, suppressor of variegation 3-9, selectively methylates Lysine 9 of the amino-terminus of Histone H3 to generate a binding site for HP1 proteins. These HP1 proteins belong to a family of heterochromatic adaptor molecules that are implicated in both gene silencing and supra-nucleosomal chromatin structure. SUV39H1 contains both SET and chromo domains and is ubiquitously expressed. The enrichment of SUV39H1 at heterochromatic foci during interphase and centromere-specific localization during metaphase depends on the C-terminal SET domain. SUV39H1 is phosphorylated specifically at the G₁/S cell cycle transition and, when forcibly expressed, suppresses cell growth. SUV39H1 acts as a long-range repressor that is capable of acting over several kilobases to silence basal promoters.

REFERENCES

1. Aagaard, L., et al. 1999. Functional mammalian homologues of the *Drosophila* PEV-modifier Su(var)3-9 encode centromere-associated proteins which complex with the heterochromatin component M31. *EMBO J.* 18: 1923-1938.
2. Melcher, M., et al. 2000. Structure-function analysis of SUV39H1 reveals a dominant role in heterochromatin organization, chromosome segregation, and mitotic progression. *Mol. Cell. Biol.* 20: 3728-3741.

CHROMOSOMAL LOCATION

Genetic locus: SUV39H1 (human) mapping to Xp11.23.

PRODUCT

SUV39H1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SUV39H1 shRNA Plasmid (h): sc-38463-SH and SUV39H1 shRNA (h) Lentiviral Particles: sc-38463-V as alternate gene silencing products.

For independent verification of SUV39H1 (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-38463A, sc-38463B and sc-38463C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SUV39H1 siRNA (h) is recommended for the inhibition of SUV39H1 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 μ M in 66 μ l. 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

SUV39H1 (C-10): sc-377112 is recommended as a control antibody for monitoring of SUV39H1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 SUV39H1 gene expression knockdown using RT-PCR Primer: SUV39H1 (h)-PR: sc-38463-PR (20 μ l, 462 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yang, Y.J., et al. 2010. The tumor suppressor, parafibromin, mediates Histone H3 K9 methylation for cyclin D1 repression. *Nucleic Acids Res.* 38: 382-390.
2. Paschall, A.V., et al. 2015. H3K9 trimethylation silences fas expression to confer colon carcinoma immune escape and 5-fluorouracil chemoresistance. *J. Immunol.* 195: 1868-1882.
3. Mishra, R., et al. 2022. TGF- β controls stromal telomere length through epigenetic modifications. *3 Biotech* 12: 290.
4. Huang, W.L., et al. 2023. SUV39H1 expression as a guideline for omitting radiotherapy in lymph node-positive triple-negative breast cancer patients. *Cancer Genomics Proteomics* 20: 582-591.

RESEARCH USE

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