

SUV39H1 (V-20): sc-31727

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. Agaard, 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. Rea, S., et al. 2000. Regulation of chromatin structure by site-specific Histone H3 methyltransferases. Nature 406: 593-599.
3. 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.
4. Hagemann, T.L., et al. 2000. Gene regulation of Wiskott-Aldrich syndrome protein and the human homolog of the *Drosophila* Su(var)3-9: WASP and SUV39H1, two adjacent genes at Xp11.23. Biochim. Biophys. Acta 1493: 368-372.
5. Firestein, R., et al. 2000. SET domain-dependent regulation of transcriptional silencing and growth control by SUV39H1, a mammalian ortholog of *Drosophila* Su(var)3-9. Mol. Cell. Biol. 20: 4900-4909.
6. Tachibana, M., et al. 2001. SET-domain containing protein, G9a, is a novel lysine-preferring mammalian histone methyltransferase with hyperactivity and specific selectivity to Lysines 9 and 27 of Histone H3. J. Biol. Chem. 276: 25309-25317.
7. Lachner, M., et al. 2001. Methylation of Histone H3 Lysine 9 creates a binding site for HP1 proteins. Nature 410: 116-120.

CHROMOSOMAL LOCATION

Genetic locus: SUV39H1 (human) mapping to Xp11.23, SUV39H2 (human) mapping to 10p13; Suv39h1 (mouse) mapping to X A1.1, Suv39h2 (mouse) mapping to 2A.

RESEARCH USE

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

SOURCE

SUV39H1 (V-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of SUV39H1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31727 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SUV39H1 (V-20) is recommended for detection of SUV39H1, and to a lesser extent, SUV39H2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SUV39H1 (V-20) is also recommended for detection of SUV39H1, and to a lesser extent, SUV39H2 in additional species, including canine, bovine and porcine.

Molecular Weight of SUV39H1: 45 kDa.

Positive Controls: HeLa nuclear extract: sc-2120 or HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **SUV39H1 (C-10): sc-377112** or **SUV39H1 (44.1): sc-23961**, our highly recommended monoclonal alternatives to SUV39H1 (V-20).