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ProductInformation

Monoclonal Anti-SUV39H1 Histone Methyltransferase
Clone 44.1
produced in mouse, purified immunoglobulin

Catalog Number **S8316**

Product Description

Monoclonal Anti-SUV39H1 Histone Methyltransferase (mouse IgG1 isotype) is derived from the 44.1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with the recombinant fusion protein MBP-SUV39H1.[1] The isotype is determined using Sigma ImmunoType™ Kit, Catalog Number ISO1, and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-SUV39H1 Histone Methyltransferase recognizes an epitope in the N-terminal (195 amino acids) of human and mouse SUV39H1 Histone Methyl-transferase.[1] Applications include the detection of SUV39H1 Histone Methyltransferase by ELISA, immunoblotting (~47 kDa), immunoprecipitation, and immunoncytochemistry.[1]

Post -translational modification of histones, such as phosphorylation, acetylation, and methylation, are crucial for chromatin remodeling. SUV39H1 and Suv39h1 are the human and mouse homologs of Drosophila Su(var)3-9 protein, respectively. These proteins selectively methylate histone H3 at lysine 9 creating a high-affinity binding site for the HP1 proteins (heterochromatin protein 1). HP1 proteins are known to interact with transcription suppressor proteins, suggesting that the interactions with SUV39H1 and methylated histone H3 mediate a silence effect on the transcription of target genes.[2, 3] Furthermore, over-expression of SUV39H1 in HeLa cells causes a redistribution of endogenous HP1 proteins and growth retardation, suggesting that SUV39H1-mediated modulation of heterochromatin can impair cell cycle progression.[1]

The overall identity between the human and mouse SUV39H1 amino acid sequences is 95%, both lacking an N-terminal 155 amino acid stretch from *Drosophila* Su(var)3-9. As a consequence, cross-species amino acid identity reaches 42% between the fly and the two mammalian proteins. The SUV39H1 protein consists of three regions: a SET domain, a 110 amino acid domain containing several cysteine conserved residues, and a chromo domain.[2] In mouse an additional gene Suv39h2 has 59% identity to Suv39h1. These proteins have an overlapping expression in embryogenesis, while in the adult Suv39h2 is mainly expressed in the testes.[4] Combined disruption of both mouse Suv39h1 and 2 causes chromosomal instability and increased risk of tumorigenesis, as well as complete spermatogenic failure that is caused by non-homologous chromosome associations.[5]

Monoclonal antibodies specific for SUV39H1 histone methyltransferase are an important tool in the study of chromatin remolding effects on gene expression.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody concentration: ~2 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing, or storage in frost-free freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

For immunoblotting, a working concentration of 2-4 µg/mL is recommended using an extract of HeLa nuclear cells.

Note: In order to obtain the best results using different techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. Firestein, R., et al., *Mol. Cell. Biol.*, **20**, 4900-4909 (2000).
2. Aagaard, L., et al., *EMBO J.*, **18**, 1923-1938 (1999).
3. Rea, S., et al., *Nature*, **406**, 593-599 (2000).
4. O'Carroll, D., et al., *Mol. Cell. Biol.*, **20**, 9423-9433 (2000).
5. Peters, A.H.F.M., et al., *Cell*, **107**, 323-327 (2001).

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