

Recombinant SUV39H1 protein

Catalog No: 31339

Expressed In: *E. coli*

Quantity: 25 µg

Concentration: 0.54 µg/µl

Source: Human

Buffer Contents: 25 µg recombinant SUV39H1 protein supplied at a concentration of 0.54 µg/µl in 40 mM Tris-HCl, pH 8.0, 110 mM NaCl, 2.2 mM KCl and 20% glycerol.

Background: SUV39H1 (Suppressor Of Variegation 3-9 Homolog 1 (Drosophila)) is a Histone methyltransferase that specifically trimethylates Lys-9 of histone H3 using monomethylated H3 Lys-9 as substrate. Also weakly methylates histone H1 (in vitro). H3 Lys-9 trimethylation represents a specific tag for epigenetic transcriptional repression by recruiting HP1 (CBX1, CBX3 and/or CBX5) proteins to methylated histones. Mainly functions in heterochromatin regions, thereby playing a central role in the establishment of constitutive heterochromatin at pericentric and telomere regions. H3 Lys-9 trimethylation is also required to direct DNA methylation at pericentric repeats. SUV39H1 is targeted to histone H3 via its interaction with RB1 and is involved in many processes, such as repression of MYOD1-stimulated differentiation, regulation of the control switch for exiting the cell cycle and entering differentiation, repression by the PML-RARA fusion protein, BMP-induced repression, repression of switch recombination to IgA and regulation of telomere length. Component of the eNoSC (energy-dependent nucleolar silencing) complex, a complex that mediates silencing of rDNA in response to intracellular energy status and acts by recruiting histone-modifying enzymes. The eNoSC complex is able to sense the energy status of cell: upon glucose starvation, elevation of NAD (+)/NADP(+) ratio activates SIRT1, leading to histone H3 deacetylation followed by dimethylation of H3 at Lys-9 (H3K9me2) by SUV39H1 and the formation of silent chromatin in the rDNA locus. Recruited by the large PER complex to the E-box elements of the circadian target genes such as PER2 itself or PER1, contributes to the conversion of local chromatin to a heterochromatin-like repressive state through H3 Lys-9 trimethylation.

Protein Details: Recombinant human SUV39H1 was expressed in *E. coli* as amino acids 82-412 (accession number NM_003173) with an N-terminal GST tag. The molecular weight of the protein is 64 kDa.

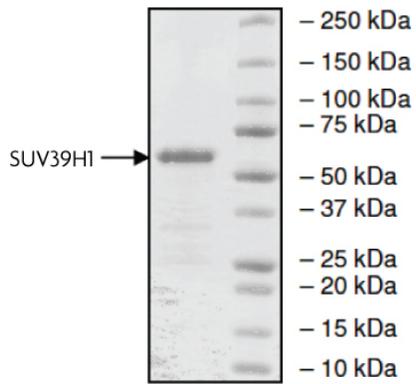
Application Notes: Recombinant SUV39H1 is suitable for use in histone methyltransferase assays. This protein is useful for the study of enzyme kinetics, screening inhibitors, and selectivity profiling.

Specific Activity: 0.05 pmol/min/mg.

Assay conditions: Prepare 50 µl reaction mix (50 mM TRIS pH8.8, 5 mM MgCl₂, 4 mM DTT, 20 µM S-adenosylmethionine, and 1-20 ng SUV39H1) and add to the wells coated with the substrate. Incubate for 1 hr at room temperature. Add antibody against methylated K9 residue of histone H3, incubate 1 hr. Then, add secondary HRP- labeled antibody and incubate 30 min. Finally, add HRP chemiluminescent substrates and read luminescence.

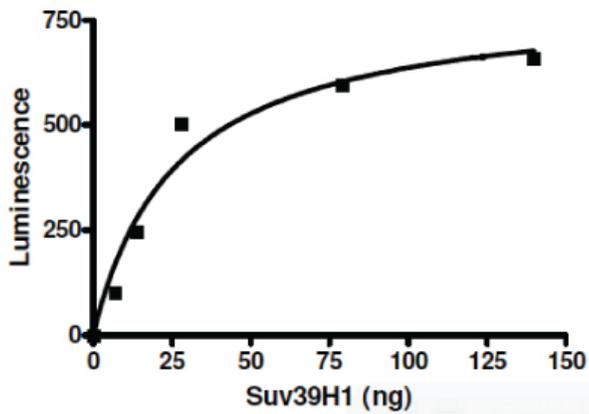
Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of receipt.

This product is for research use only and is not for use in diagnostic procedures.



SUV39H1 protein gel.

SUV39H1 (4.2 μ g) run on a 10% SDS-PAGE gel and stained with Coomassie blue. Arrow indicates recombinant SUV39H1.



SUV39H1 activity assay.

Recombinant SUV39H1 activity measured using a fluorescent histone H3 lysine 9 methyltransferase assay.