

Histone H3K4me1 antibody (pAb)

Catalog Nos: 39297, 39498, 39298

RRID: AB_2615075

Isotype: Serum

Application(s): ChIP, ChIP-Seq, CUT&Tag, DB, ICC, IF, WB

Reactivity: Human, Mouse, Wide Range Predicted

Volumes: 100 µl, 50 µl, 10 µl

Purification: None

Host: Rabbit

Molecular Weight: 17 kDa

Background: Histone H3 is one of the core components of the nucleosome. The nucleosome is the smallest subunit of chromatin and consists of 147 base pairs of DNA wrapped around an octamer of core histone proteins (two each of Histone H2A, Histone H2B, Histone H3 and Histone H4). Histone H1 is a linker histone, present at the interface between the nucleosome core and DNA entry/exit points. Histone H1 is responsible for establishing higher-order chromatin structure. Chromatin is subject to a variety of chemical modifications, including post-translational modifications of the histone proteins and the methylation of cytosine residues in the DNA. Reported histone modifications include acetylation, methylation, phosphorylation, ubiquitylation, glycosylation, ADP-ribosylation, carbonylation and SUMOylation; these modifications play a major role in regulating gene expression. The methylation of histones can occur on two different residues: arginine or lysine. Histone methylation can be associated with transcriptional activation or repression, depending on the methylated residue. Lysine 4 of histone H3 can be mono-, di- or trimethylated by different histone methyltransferases (HMTs) such as SET1 or ASH1. Methylation of Lys4 is often associated with transcriptional activation. The demethylase LSD1 is able to demethylate histone H3 Lys4.

Immunogen: This Histone H3 monomethyl Lys4 antibody was raised against a peptide including monomethyl-lysine 4 of human histone H3.

Buffer: Rabbit serum containing 30% glycerol and 0.035% sodium azide. Sodium azide is highly toxic. For your convenience, an IgG version (Catalog No. 61633) of this antibody that was purified by Protein A Chromatography is also available.

Application Notes:

Applications Validated by Active Motif:

ChIP: 10 µl per ChIP

ChIP-Seq: 10 µl each

ICC/IF: 1:500 - 1:1,000 dilution

WB: 1:5,000 - 1:20,000 dilution

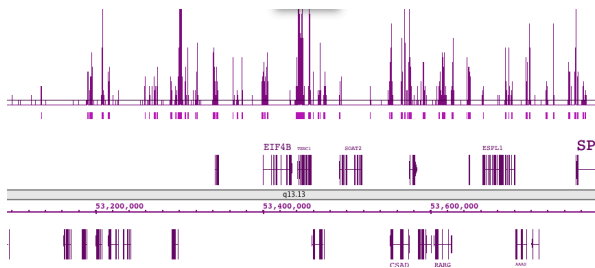
CUT&Tag 1 µl per 50 µl reaction

For Histone H3K4me1, we also offer AbFlex® Histone H3K4me1 Recombinant Antibody (rAb). For details, see Catalog No. 91289.

The modENCODE and NIH Roadmap Epigenomics Mapping Consortiums have implemented rigorous standardization criteria for all assays and reagents to be used. As part of this initiative, antibody specificity testing and the ability of the antibodies to work in ChIP-Seq were assessed in a large-scale study. This Histone H3 monomethyl Lys4 antibody was validated for ChIP-Seq in the study.

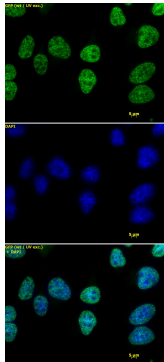
Storage and Guarantee: Some products may be shipped at room temperature. This will not affect their stability or performance. Avoid repeated freeze/thaw cycles by aliquoting items into single-use fractions for storage at -20°C for up to 2 years. Keep all reagents on ice when not in storage. This product is guaranteed for 12 months from date of receipt.

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



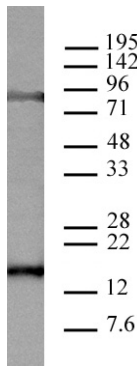
Histone H3 monomethyl Lys4 antibody tested by ChIP-Seq.

ChIP was performed using the ChIP-IT[®] High Sensitivity Kit (Cat. No. 53040) with chromatin from human prostate cancer cells (3 million). ChIP DNA was sequenced on the Illumina GA II and 22 million sequence tags were mapped to identify H3K4me1 binding sites. The image shows H3K4me1 binding across a 600 Kb region on chromosome 13.



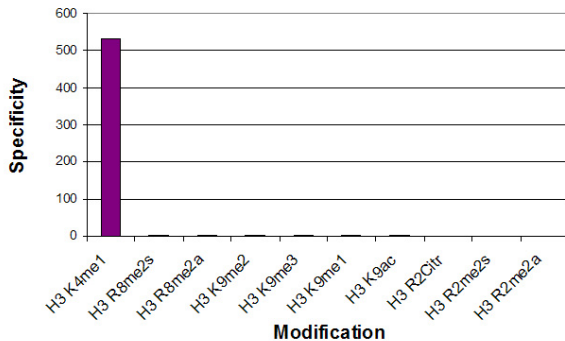
Histone H3 monomethyl Lys4 antibody (pAb) tested by immunofluorescence.

HeLa cells stained with Histone H3 monomethyl Lys4 antibody (1:1,000). Top: Histone H3 monomethyl Lys4 antibody. Middle: DAPI. Bottom: merge.



Histone H3 monomethyl Lys4 antibody tested by Western blot.

HeLa acid extract probed with Histone H3 monomethyl Lys4 antibody (1:1,000 dilution).



Histone H3 monomethyl Lys4 antibody specificity tested by peptide array analysis.

Peptide array analysis was used to confirm the specificity of this antibody for its intended modification. Histone H3 monomethyl Lys4 antibody was applied at a dilution of 1:5,000 to Active Motif's MODified™ Histone Peptide Array (Catalog No. 13001). The arrays were scanned with ArrayAnalysis Software 7 and the results plotted. Specificity data is shown for the most reactive peptides and those related to the immunogen. Recognition of the H3 monomethyl Lys4 peptide is blocked by Thr3 phosphorylation, Arg2 methylation and a citrulline at position 2. Array Data File

Histone H3K4me1 antibody tested by dot blot analysis.

Dot blot analysis was used to confirm the specificity of Histone H3K4me1 antibody for monomethyl-Lys4 histone H3. methylated histone proteins corresponding to the immunogen were spotted onto PVDF and probed with the antibody at 1:500. The amount of recombinant histone(s) (picomoles) spotted is indicated next to each row. Lane 1: Unmodified H3. Lane 2: H3K27me1. Lane 3: H3K27me2. Lane 4: H3K27me3. Lane 5: H3K4me1. Lane 6: H3K4me2. Lane 7: H3K4me3. Lane 8: H3K9me1. Lane 9: Unmodified H3K9me2. Lane 10: H3K9me3.

