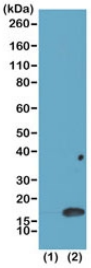
H3K4me2 Antibody / HIST1H3A Promoter Activation Readiness Antibody [clone RM135] (R20201)

Catalog No.	Formulation	Size
R20201-100UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ug
R20201-25UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	25 ug

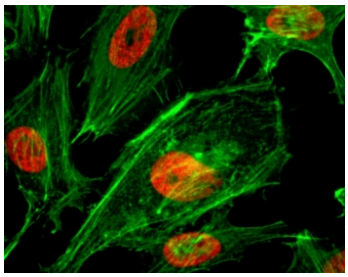
Recombinant RABBIT MONOCLONAL

Bulk quote request

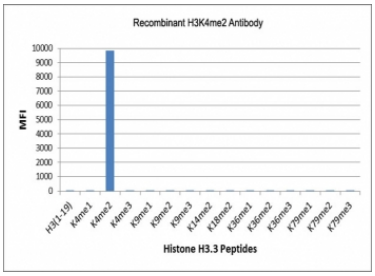
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM135
Purity	Protein A purified from animal origin-free supernatant
UniProt	P84243
Gene ID	8350
Applications	Western Blot : 0.02ug/ml-0.2ug/ml Immunocytochemistry : 1-2ug/ml ELISA : 0.2-1ug/ml
Limitations	This recombinant H3K4me2 antibody is available for research use only.



H3K4me2 Antibody / HIST1H3A Promoter Activation Readiness Antibody (clone RM135) for WB. Western blot analysis of HIST1H3A / Histone H3 Lys4 dimethylation (K4me2) in (1) recombinant Histone H3.3 and (2) acid extracts of human HeLa cells using H3K4me2 Antibody / HIST1H3A Promoter Activation Readiness Antibody. A band is detected at the predicted molecular weight of approximately 15 kDa corresponding to dimethylated Histone H3, consistent with promoter-associated chromatin marking transcriptional readiness and activation potential.



ICC testing of human HeLa cells treated with sodium butyrate using recombinant H3K4me2 antibody (red). Actin filaments have been labeled with fluorescein phalloidin (green).



H3K4me2 Antibody / HIST1H3A Promoter Activation Readiness Antibody (clone RM135) specificity analysis. Peptide binding assay demonstrating selective recognition of HIST1H3A / Histone H3 Lys4 dimethylation (K4me2). Strong signal is observed exclusively with the K4me2 peptide, while no detectable reactivity is seen with monomethylated (K4me1), trimethylated (K4me3), or other methylated histone H3 peptides, confirming high specificity for the dimethylated Lys4 state associated with promoter activation readiness and transcription initiation.

Description

Histone H3 (HIST1H3A) methylation at lysine 4 is a central feature of promoter-associated chromatin states and transcriptional initiation. Dimethylation at lysine 4 represents a chromatin configuration associated with promoter readiness and transcriptional activation potential. H3K4me2 Antibody / HIST1H3A Promoter Activation Readiness Antibody (clone RM135) is designed to detect Histone H3 dimethylated at lysine 4, providing a marker of promoters poised for transcriptional engagement. This antibody is part of a broader collection of Histone H3 antibodies used to study chromatin structure, histone modifications, and epigenetic regulation.

HIST1H3A antibody, also referred to as Histone H3 antibody and H3K4me2 antibody in the literature, recognizes a modification enriched at promoter regions and transcription start sites. This distinguishes H3K4me2 from H3K4me1, which marks enhancers, and H3K4me3, which is tightly associated with actively transcribing promoters. H3K4me2 occupies an intermediate activation state that reflects transcriptional competence without full transcriptional output.

This recombinant rabbit monoclonal clone RM135 antibody is uniquely positioned for studies of promoter readiness and transcription initiation. H3K4 dimethylation is commonly found at promoters that are accessible and prepared for activation but not yet fully engaged in high transcriptional activity.

At the molecular level, H3K4me2 contributes to recruitment of transcription factors and chromatin remodeling complexes that facilitate gene activation. It helps establish promoter architecture and maintain open chromatin conducive to transcription initiation.

This modification provides insight into promoter regions that are responsive to regulatory signals and capable of rapid activation. It represents a key step in the transition from inactive to active transcriptional states.

H3K4 methylation states form a gradient of promoter activity, with monomethylation marking enhancers, dimethylation indicating readiness, and trimethylation marking active transcription start sites.

In western blot applications, the antibody detects Histone H3 at approximately 15 kDa, with signal corresponding to dimethylated chromatin at promoter regions. Detection reflects transcription initiation potential rather than elongation or enhancer function.

At the cellular level, H3K4 dimethylation localizes to the nucleus and is enriched at promoter-associated chromatin. This supports its use in studying transcriptional activation readiness and promoter regulation.

This antibody supports detection of Lys4-dimethylated Histone H3, enabling investigation of promoter activation, transcription initiation, and epigenetic regulation of gene expression.

Application Notes

The stated application concentrations are suggested starting points. Titration of the H3K4me2 Antibody / HIST1H3A Promoter Activation Readiness Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A dimethyl-peptide corresponding to Dimethyl-Histone H3 (Lys4) was used as the immunogen for this H3K4me2 Antibody / HIST1H3A Promoter Activation Readiness Antibody.

Storage

Store the recombinant H3K4me2 antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

Histone H3 Lys4 dimethylation antibody, H3K4me2 promoter antibody, histone H3 di methyl Lys4 antibody, H3K4 dimethyl histone antibody