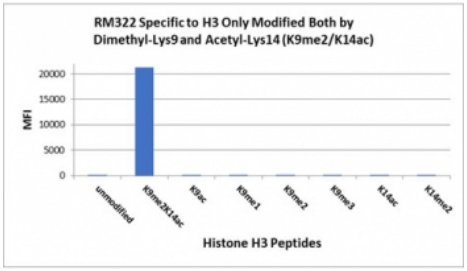
H3K9me2/K14ac Antibody / HIST1H3A Chromatin State Transition Antibody [clone RM322] (R20346)

Catalog No.	Formulation	Size
R20346-0.1ML	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

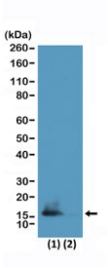
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM322
Purity	Protein A purified from animal origin-free supernatant
UniProt	P84243
Applications	Western blot: 0.1ug/ml-1ug/ml
Limitations	This recombinant H3K9me2/K14ac antibody is available for research use only.



H3K9me2/K14ac Antibody / HIST1H3A Chromatin State Transition Antibody (clone RM322) specificity analysis. Peptide binding assay demonstrating selective recognition of HIST1H3A / Histone H3 only when both dimethyl-Lys9 and acetyl-Lys14 (K9me2/K14ac) modifications are present simultaneously. Strong signal is observed exclusively with the dual-modified peptide, while no detectable reactivity is seen with unmodified peptides, Lys9 methylation alone (K9me1, K9me2, K9me3), Lys14 acetylation alone, or other single-modification states, confirming high specificity for the combinatorial K9me2/K14ac chromatin state associated with dynamic epigenetic regulation.



Western blot testing of human HeLa cell lysate (1) and recombinant Histone H3.3 (2) using H3K9me2/K14ac Antibody / HIST1H3A Chromatin State Transition Antibody at 0.5ug/ml.

Description

Histone H3 (HIST1H3A) is subject to extensive post-translational modification within its N-terminal tail, where combinations of marks collectively define chromatin structure and transcriptional outcomes. Among these, dimethylation at lysine 9 (H3K9me2) is typically associated with transcriptional repression and heterochromatin formation, while acetylation at lysine 14 (H3K14ac) is linked to chromatin accessibility and transcriptional activation. H3K9me2/K14ac Antibody / HIST1H3A Chromatin State Transition Antibody (clone RM322) is designed to detect Histone H3 carrying both modifications simultaneously, providing a unique tool for interrogating combinatorial chromatin states. 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 H3K9me2 K14ac antibody in the literature, recognizes a dual modification pattern that reflects integration of opposing regulatory signals within a single histone tail. This combinatorial configuration is central to the histone code paradigm, in which multiple modifications act cooperatively or antagonistically to fine-tune chromatin behavior rather than functioning as isolated binary switches.

This recombinant rabbit monoclonal clone RM322 antibody is uniquely positioned to detect chromatin regions in transitional or context-dependent regulatory states. The coexistence of a repressive mark (K9me2) and an activating mark (K14ac) suggests chromatin that is poised, dynamically regulated, or undergoing active remodeling rather than being locked in a fully repressed or fully active configuration.

At the molecular level, H3K9me2 promotes recruitment of chromatin compaction factors and repressive complexes that stabilize transcriptionally inactive chromatin. In contrast, H3K14ac neutralizes lysine charge and facilitates recruitment of bromodomain-containing proteins and chromatin remodeling complexes that promote accessibility. The simultaneous presence of these modifications indicates a regulatory interface where competing chromatin signals coexist, enabling fine control of gene expression.

This dual modification may arise in genomic regions undergoing activation from a previously repressed state, where acetylation is introduced prior to removal of repressive methylation. Alternatively, it may reflect regulatory heterogeneity within nucleosome populations or localized chromatin environments where multiple signaling pathways converge.

Such combinatorial modification patterns have been implicated in developmental gene regulation, stimulus-responsive transcription, and epigenetic reprogramming, where chromatin must remain flexible and responsive rather than fixed. The presence of H3K9me2/K14ac may therefore mark regions of chromatin plasticity, where transcriptional outcomes are actively being established or modulated.

Unlike single-modification antibodies that report discrete chromatin states, this antibody enables detection of higher-order epigenetic complexity. It provides insight into chromatin configurations that cannot be inferred from individual marks alone and supports investigation of the interplay between activating and repressive mechanisms.

This is particularly valuable in studies of lineage specification, tumor epigenetics, and environmental response pathways, where chromatin states are highly dynamic and influenced by multiple regulatory inputs.

At the cellular level, Histone H3 carrying the H3K9me2/K14ac combination localizes to the nucleus and is associated with chromatin regions undergoing dynamic regulation. Its distribution is expected to vary across cell types and conditions, reflecting the balance of activating and repressive signaling pathways.

This antibody supports detection of Histone H3 with combined lysine 9 dimethylation and lysine 14 acetylation, enabling investigation of chromatin state transitions, combinatorial histone modification patterns, and complex epigenetic regulatory mechanisms that govern gene expression.

Application Notes

The stated application concentrations are suggested starting points. Titration of the H3K9me2/K14ac Antibody / HIST1H3A Chromatin State Transition Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A dimethyl-peptide corresponding to dimethyl-Histone H3 (Lys9) and an acetyl-peptide corresponding to Acetyl-Histone H3 (Lys14) was used as the immunogen for the H3K9me2/K14ac Antibody / HIST1H3A Chromatin State Transition Antibody.

Storage

Store the recombinant H3K9me2/K14ac antibody at -20oC.

Alternate Names

Histone H3 K9 dimethyl K14 acetyl antibody, H3K9me2 K14ac dual modification antibody, histone H3 combinatorial modification antibody, H3K9me2 K14ac chromatin antibody

Copyright © NSJ Bioreagents. All rights reserved.