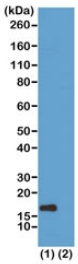
H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody [clone RM179] (R20221)

Catalog No.	Formulation	Size
R20221-100UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ug
R20221-25UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	25 ug

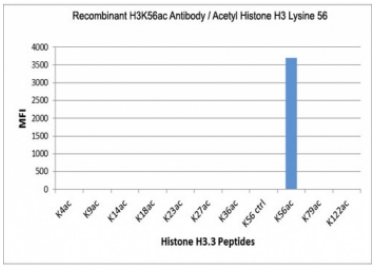
Recombinant RABBIT MONOCLONAL

Bulk quote request

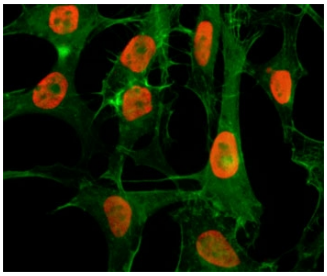
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM179
Purity	Protein A purified from animal origin-free supernatant
UniProt	P84243
Gene ID	8350
Applications	Western Blot : 1-2ug/ml Immunocytochemistry : 0.5-2ug/ml Immunohistochemistry : 1-10ug/ml (1) ELISA : 0.5-1ug/ml
Limitations	This recombinant H3K56ac antibody is available for research use only.



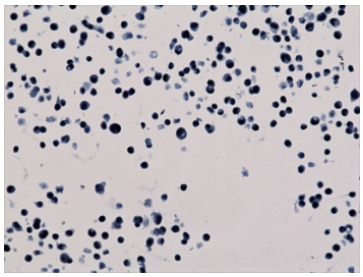
H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody (clone RM179) for WB. Western blot analysis of HIST1H3A / Histone H3 Lys56 acetylation in (1) acid extracts of sodium butyrate-treated human HeLa cells and (2) recombinant Histone H3.3 using H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody. A band is detected at the predicted molecular weight of approximately 15 kDa corresponding to acetylated Histone H3, with signal reflecting replication-associated chromatin assembly and histone incorporation dynamics.



H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody (clone RM179) specificity analysis. Peptide binding assay demonstrating selective recognition of HIST1H3A / Histone H3 Lys56 acetylation (K56ac). Strong signal is observed exclusively with the K56ac peptide, while no detectable reactivity is seen with unmodified Lys56 or acetylation at other lysine residues, confirming high specificity for the Lys56 acetylation site associated with replication-coupled chromatin assembly.



H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody (clone RM179) for IF. Immunofluorescence analysis of HIST1H3A / Histone H3 Lys56 acetylation in sodium butyrate-treated human HeLa cells using H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody (red). Prominent nuclear staining is observed, consistent with increased lysine acetylation and replication-associated chromatin assembly dynamics, while nuclei display diffuse euchromatic signal. Actin filaments are labeled with fluorescein phalloidin (green), outlining cellular morphology and providing contrast to the nuclear acetylation signal.



ICC staining of human HepG2 cells with recombinant H3K56ac antibody.

Description

Histone H3 (HIST1H3A) acetylation at lysine 56 is a specialized chromatin modification associated with DNA replication, nucleosome assembly, and genome stability. H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody (clone RM179) is designed to detect Histone H3 acetylated at lysine 56, providing a direct marker of newly assembled chromatin and replication-coupled nucleosome dynamics. 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 H3K56ac antibody in the literature, recognizes a modification located within the globular domain of Histone H3 near the DNA entry-exit region of the nucleosome. This positioning distinguishes Lys56 acetylation from N-terminal tail modifications such as H3K9ac or H3K27ac and gives it a unique structural role in modulating histone-DNA interactions during chromatin assembly.

This recombinant rabbit monoclonal clone RM179 antibody is uniquely positioned for studies of DNA replication and chromatin assembly rather than transcriptional regulation alone. H3K56 acetylation is enriched in newly synthesized histones that are incorporated into chromatin during S phase, marking regions undergoing active nucleosome assembly following DNA replication.

At the molecular level, H3K56 acetylation facilitates histone deposition by weakening DNA-histone contacts and promoting interaction with histone chaperones such as CAF-1 and Asf1. This enables efficient nucleosome assembly at replication forks and supports proper chromatin organization during genome duplication.

In addition to its role in replication, H3K56 acetylation is involved in DNA damage response pathways, where it contributes to chromatin relaxation and accessibility required for repair processes. Its dynamic regulation reflects transient chromatin states associated with genome maintenance rather than steady-state transcriptional activity.

In western blot applications, the antibody detects Histone H3 at approximately 15 kDa, with signal corresponding to acetylated chromatin associated with replication and chromatin assembly. Detection reflects replication-associated chromatin states rather than promoter activation, enhancer activity, or transcription elongation.

At the cellular level, H3K56 acetylation localizes to the nucleus and is enriched during S phase and in regions undergoing chromatin reorganization. This pattern clearly distinguishes it from transcription-associated acetylation marks and highlights its role in genome duplication and stability.

This antibody supports detection of Lys56-acetylated Histone H3, enabling investigation of DNA replication, chromatin assembly, nucleosome dynamics, and epigenetic regulation of genome integrity.

Application Notes

The stated application concentrations are suggested starting points. Titration of the H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

1. A pH6 Citrate buffer or pH9 Tris/EDTA buffer HIER step is recommended for testing of FFPE tissue sections.

Immunogen

An acetyl-peptide corresponding to Acetyl-Histone H3 (Lys56) was used as the immunogen for this H3K56ac Antibody / HIST1H3A DNA Replication Chromatin Assembly Antibody.

Storage

Store the recombinant H3K56ac antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

Histone H3 Lys56 acetylation antibody, H3K56ac DNA replication antibody, histone H3 acetyl Lys56 antibody, chromatin assembly histone antibody