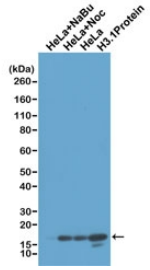
Histone H3 Antibody / Unmodified Lysine 4 Chromatin Reference Antibody [clone RM186] (R20228)

Catalog No.	Formulation	Size
R20228-100UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ug
R20228-25UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	25 ug

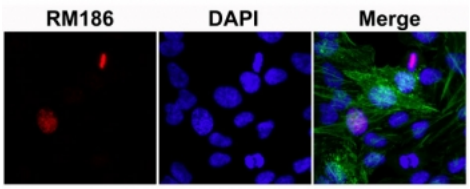
Recombinant RABBIT MONOCLONAL

Bulk quote request

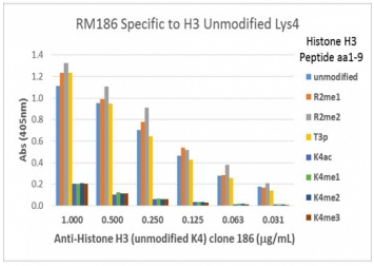
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM186
Purity	Protein A purified from animal origin-free supernatant
UniProt	Q16695
Gene ID	8350
Applications	Western Blot : 1-2ug/ml ELISA : 0.5-1ug/ml Immunocytochemistry : 0.5-2ug/ml
Limitations	This recombinant Histone H3 antibody is available for research use only.



Histone H3 Antibody / Unmodified Lysine 4 Chromatin Reference Antibody (clone RM186) for WB. Western blot analysis of HIST1H3A / Histone H3 unmodified at Lys4 (H3K4 unmodified) in acid extracts of human HeLa cells treated with sodium butyrate (HeLa+NaBu), untreated and nocodazole-treated HeLa cells, and recombinant Histone H3.1 protein using Histone H3 Antibody / Unmodified Lysine 4 Chromatin Reference Antibody. A band is detected at the predicted molecular weight corresponding to Histone H3, consistent with selective recognition of the unmodified Lys4 state and suitability as a chromatin reference for assessing H3K4 modification dynamics.



ICC/IF staining of HeLa cells treated with sodium butyrate using recombinant Histone H3 antibody (red). Actin filaments have been labeled with fluorescein phalloidin (green).



Histone H3 Antibody / Unmodified Lysine 4 Chromatin Reference Antibody (clone RM186) specificity analysis. Peptide binding assay demonstrating selective recognition of HIST1H3A / Histone H3 unmodified at Lys4 (H3K4 unmodified). Strong signal is observed with the unmodified Lys4 peptide, while no detectable reactivity is seen with acetylated, monomethylated, dimethylated, or trimethylated Lys4 peptides. Binding is retained in the presence of adjacent modifications including Arg2 and Thr3, confirming high specificity for the unmodified Lys4 state and suitability for quantitative analysis of H3K4 modification dynamics.

Description

Histone H3 (HIST1H3A) is extensively modified at lysine 4, a key regulatory residue within the N-terminal tail that plays a central role in transcriptional control and chromatin organization. Modifications at this site, including mono-, di-, and trimethylation as well as acetylation, are strongly associated with transcriptional activation and promoter function. Histone H3 Antibody / Unmodified Lysine 4 Chromatin Reference Antibody (clone RM186) is designed to specifically detect Histone H3 that is unmodified at lysine 4, providing a precise and functionally important reference point for epigenetic analysis. 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 H3K4 unmodified antibody in the literature, recognizes the native lysine 4 residue only when it is not acetylated or methylated. This selective binding distinguishes it from total H3 antibodies, which detect all forms of the protein regardless of modification, and from modification-specific antibodies that detect only modified states. As a result, this antibody uniquely reports the unmodified fraction of histone H3 at a site that is central to transcriptional regulation.

This recombinant rabbit monoclonal clone RM186 antibody is uniquely positioned as a chromatin reference and normalization tool for studies of histone modification dynamics. By detecting only unmodified lysine 4, it enables accurate quantification of changes in H3K4 modification levels when used alongside antibodies targeting H3K4me1, H3K4me2, H3K4me3, or H3K4ac. This is particularly valuable in experiments where relative modification occupancy must be assessed rather than total histone abundance.

At the molecular level, lysine 4 of histone H3 is a primary site of epigenetic signaling. Methylation at this residue is tightly linked to promoter activity, with H3K4me3 marking active transcription start sites and H3K4me1 associated with enhancer regions. In contrast, the unmodified state of lysine 4 is often enriched in transcriptionally inactive or neutral chromatin regions and represents a baseline chromatin configuration prior to activation.

The ability to specifically detect unmodified H3K4 provides insight into chromatin regions that have not undergone activating modification, allowing researchers to distinguish between active, poised, and inactive chromatin states. This is particularly important in chromatin immunoprecipitation and epigenetic profiling studies, where interpretation of modification patterns requires a clear understanding of the unmodified baseline.

Importantly, this antibody retains binding in the presence of adjacent modifications, including those at arginine 2, threonine 3, and other nearby residues. This ensures robust detection of unmodified lysine 4 even within complex combinatorial modification environments, where neighboring residues may carry independent regulatory marks.

Unlike modification-specific antibodies that indicate discrete activation states, this antibody provides a complementary readout of chromatin that lacks lysine 4 modification. This makes it an essential tool for quantitative normalization and for mapping the full spectrum of chromatin states at regulatory regions.

At the cellular level, Histone H3 localizes to the nucleus and is distributed throughout chromatin. Detection of the unmodified lysine 4 state reflects chromatin regions not engaged in lysine 4-dependent transcriptional activation, providing a baseline measure of chromatin modification status.

This antibody supports detection of Histone H3 unmodified at lysine 4, enabling investigation of chromatin baseline states, quantitative epigenetic analysis, and accurate interpretation of histone modification dynamics across diverse biological systems.

Application Notes

The stated application concentrations are suggested starting points. Titration of the recombinant Histone H3 Antibody / Unmodified Lysine 4 Chromatin Reference Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

An unmodified peptide corresponding to the N-terminus of Histone H3 was used as the immunogen for this Histone H3 Antibody / Unmodified Lysine 4 Chromatin Reference Antibody.

Storage

Store the recombinant Histone H3 antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

Histone H3 K4 unmodified antibody, H3 Lys4 unmodified control antibody, H3K4 unmodified chromatin antibody, histone H3 K4 control antibody