ARG57206
anti-Histone H3 acetyl (Lys79) antibody [RM156]

Package: 50 µg
Store at: -20°C

Summary

Product Description	Rabbit Monoclonal antibody [RM156] recognizes Histone H3 acetyl (Lys79)
Tested Reactivity	Hu
Tested Application	ChIP, ELISA, ICC/IF, WB
Specificity	This antibody reacts to Histone H3 acetylated at Lysine 79 (K79ac). No cross reactivity with other acetylated Lysines in Histone H3.
Host	Rabbit
Clonality	Monoclonal
Clone	RM156
Isotype	IgG
Target Name	Histone H3
Species	Others
Immunogen	An acetyl-peptide corresponding to the Acetyl-Histone H3 (Lys79).
Conjugation	Un-conjugated
Alternate Names	Histone H3/f; Histone H3.1; Histone H3/d; Histone H3/b; Histone H3/c; Histone H3/a; Histone H3/l; Histone H3/j; Histone H3/k; Histone H3/h; H3/A; H3FA; Histone H3/i

Application Instructions

Application table

Application	Dilution
ChIP	2 - 10 µg/ml
ELISA	0.2 - 1 µg/ml
ICC/IF	0.5 - 2 µg/ml
WB	0.5 - 2 µg/ml

Application Note: * The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.

Properties

Form	Liquid
Purification	Purification with Protein A.
Buffer	PBS, 0.09% Sodium azide, 50% Glycerol and 1% BSA.
Preservative	0.09% Sodium azide
Stabilizer	50% Glycerol and 1% BSA

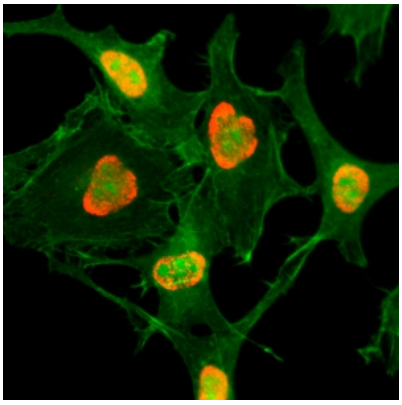
Concentration	1 mg/ml
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.
Note	For laboratory research only, not for drug, diagnostic or other use.

Bioinformation

Database links	GeneID: 8350 Human Swiss-port # P68431 Human
Gene Symbol	HIST1H3A
Gene Full Name	histone cluster 1, H3a
Background	Histones are basic nuclear proteins that are responsible for the nucleosome structure of the chromosomal fiber in eukaryotes. This structure consists of approximately 146 bp of DNA wrapped around a nucleosome, an octamer composed of pairs of each of the four core histones (H2A, H2B, H3, and H4). The chromatin fiber is further compacted through the interaction of a linker histone, H1, with the DNA between the nucleosomes to form higher order chromatin structures. This gene is intronless and encodes a replication-dependent histone that is a member of the histone H3 family. Transcripts from this gene lack polyA tails; instead, they contain a palindromic termination element. This gene is found in the large histone gene cluster on chromosome 6p22-p21.3. [provided by RefSeq, Aug 2015]
Function	Core component of nucleosome. Nucleosomes wrap and compact DNA into chromatin, limiting DNA accessibility to the cellular machineries which require DNA as a template. Histones thereby play a central role in transcription regulation, DNA repair, DNA replication and chromosomal stability. DNA accessibility is regulated via a complex set of post-translational modifications of histones, also called histone code, and nucleosome remodeling. [UniProt]
Research Area	Controls and Markers antibody; Gene Regulation antibody; Loading Control antibody; Loading Control antibody for Nuclear Fractions; Organelle Marker antibody for Nucleus; Nuclear translocation Study antibody; CARM1 mediated histone arginine methylation antibody; Cell Cycle Study antibody; Polycomb Complexes antibody
PTM	Acetylation is generally linked to gene activation. Acetylation on Lys-10 (H3K9ac) impairs methylation at Arg-9 (H3R8me2s). Acetylation on Lys-19 (H3K18ac) and Lys-24 (H3K24ac) favors methylation at Arg-18 (H3R17me). Acetylation at Lys-123 (H3K122ac) by EP300/p300 plays a central role in chromatin structure: localizes at the surface of the histone octamer and stimulates transcription, possibly by promoting nucleosome instability. Citrullination at Arg-9 (H3R8ci) and/or Arg-18 (H3R17ci) by PADI4 impairs methylation and represses transcription. Asymmetric dimethylation at Arg-18 (H3R17me2a) by CARM1 is linked to gene activation. Symmetric dimethylation at Arg-9 (H3R8me2s) by PRMT5 is linked to gene repression. Asymmetric dimethylation at Arg-3 (H3R2me2a) by PRMT6 is linked to gene repression and is mutually exclusive with H3 Lys-5 methylation (H3K4me2 and H3K4me3). H3R2me2a is present at the 3' of genes regardless of their transcription state and is enriched on inactive promoters, while it is absent on active promoters. Methylation at Lys-5 (H3K4me), Lys-37 (H3K36me) and Lys-80 (H3K79me) are linked to gene activation. Methylation at Lys-5 (H3K4me) facilitates subsequent acetylation of H3 and H4. Methylation at Lys-80 (H3K79me) is associated with DNA double-strand break (DSB) responses and is a specific target for TP53BP1. Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are linked to gene repression. Methylation at Lys-10 (H3K9me) is a specific target for HP1 proteins (CBX1, CBX3 and CBX5) and prevents subsequent phosphorylation at Ser-11 (H3S10ph) and acetylation of H3 and H4. Methylation at Lys-5 (H3K4me) and Lys-80 (H3K79me) require preliminary monoubiquitination of H2B at 'Lys-120'. Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are enriched in inactive X chromosome chromatin. Monomethylation at Lys-57 (H3K56me1) by EHMT2/G9A in G1 phase promotes interaction with PCNA and is required for DNA replication. Phosphorylated at Thr-4 (H3T3ph) by GSG2/haspin during prophase and dephosphorylated during anaphase. Phosphorylation at Ser-11 (H3S10ph) by AURKB is crucial for chromosome condensation and cell-cycle progression during mitosis and meiosis. In addition phosphorylation at Ser-11 (H3S10ph) by RPS6KA4 and RPS6KA5 is important during interphase because it enables the transcription of genes following external stimulation, like mitogens, stress, growth factors or UV irradiation and result in the activation of genes, such as c-fos and c-jun. Phosphorylation at Ser-11 (H3S10ph), which is linked to gene activation, prevents methylation at Lys-10 (H3K9me) but facilitates acetylation of H3 and H4. Phosphorylation at Ser-11 (H3S10ph) by AURKB mediates the dissociation of HP1 proteins (CBX1, CBX3

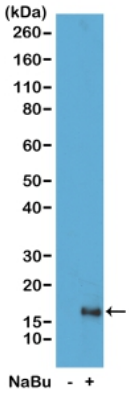
and CBX5) from heterochromatin. Phosphorylation at Ser-11 (H3S10ph) is also an essential regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 (H3S28ph) by MAP3K20 isoform 1, RPS6KA5 or AURKB during mitosis or upon ultraviolet B irradiation. Phosphorylation at Thr-7 (H3T6ph) by PRKCB is a specific tag for epigenetic transcriptional activation that prevents demethylation of Lys-5 (H3K4me) by LSD1/KDM1A. At centromeres, specifically phosphorylated at Thr-12 (H3T11ph) from prophase to early anaphase, by DAPK3 and PKN1. Phosphorylation at Thr-12 (H3T11ph) by PKN1 is a specific tag for epigenetic transcriptional activation that promotes demethylation of Lys-10 (H3K9me) by KDM4C/JMJD2C. Phosphorylation at Thr-12 (H3T11ph) by chromatin-associated CHEK1 regulates the transcription of cell cycle regulatory genes by modulating acetylation of Lys-10 (H3K9ac). Phosphorylation at Tyr-42 (H3Y41ph) by JAK2 promotes exclusion of CBX5 (HP1 alpha) from chromatin.
Monoubiquitinated by RAG1 in lymphoid cells, monoubiquitination is required for V(D)J recombination (By similarity). Ubiquitinated by the CUL4-DDB-RBX1 complex in response to ultraviolet irradiation. This may weaken the interaction between histones and DNA and facilitate DNA accessibility to repair proteins.
Lysine deamination at Lys-5 (H3K4all) to form allysine is mediated by LOXL2. Allysine formation by LOXL2 only takes place on H3K4me3 and results in gene repression (PubMed:22483618).
Crotonylation (Kcr) is specifically present in male germ cells and marks testis-specific genes in post-meiotic cells, including X-linked genes that escape sex chromosome inactivation in haploid cells. Crotonylation marks active promoters and enhancers and confers resistance to transcriptional repressors. It is also associated with post-meiotically activated genes on autosomes.

Images



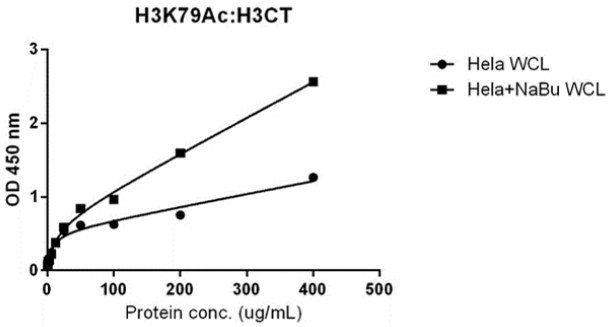
ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] ICC/IF image

Immunofluorescence: HeLa cells treated with sodium butyrate, stained with ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] (red). Actin filaments have been labeled with fluorescein phalloidin (green).



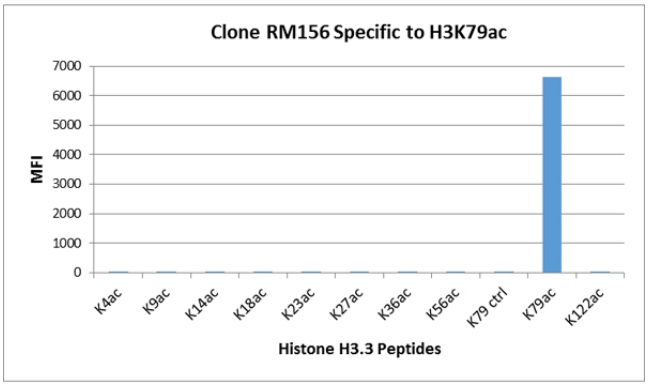
ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] WB image

Western blot: Acid extracts from HeLa cells untreated (-) or treated with sodium butyrate (+), stained with ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] at 1.0 µg/ml, showed a band of histone H3 acetylated at Lysine 79 in treated HeLa.



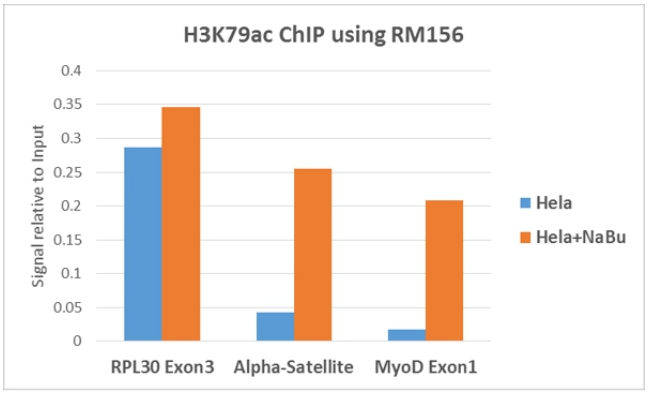
ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] ELISA image

Sandwich ELISA: HeLa whole cell lysate, treated or untreated with Sodium Butyrate. Using ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] at 5 µg/ml as the capture antibody and biotinylated ARG57229 anti-Histone H3 pan antibody [RM188] at 1 µg/ml as the detection antibody.



ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] Specificity test image

ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] specifically reacts to Histone H3 acetylated at Lysine 79 (K79ac). No cross reactivity with acetylated Lysine 4 (K4ac), Lysine 9 (K9ac), Lysine 14(K14ac), Lysine 18 (K18ac), Lysine 23 (K23ac), Lysine 27 (K27ac), Lysine 36 (K36ac), Lysine 56 (K56ac), or Lysine 122 (K122) in Histone H3.



ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] ChIP image

ChIP: HeLa cells with or without Sodium Butyrate treatment, using ARG57206 anti-Histone H3 acetyl (Lys79) antibody [RM156] (5 µg). Real-time PCR was performed using primers specific to the geneindicated.