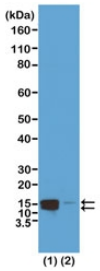
Phospho-Histone H2A/H4 Antibody (pSer1) / HIST1H2A-HIST1H4 Early Chromatin Stress Signaling Antibody [clone RM216] (R20231)

Catalog No.	Formulation	Size
R20231-100UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ug
R20231-25UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	25

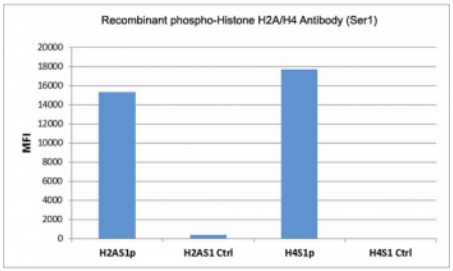
Recombinant RABBIT MONOCLONAL

Bulk quote request

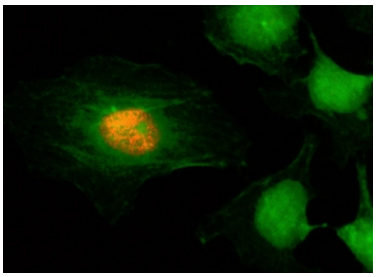
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM216
Purity	Protein A purified from animal origin-free supernatant
UniProt	P16104, P62805
Gene ID	3012, 121504
Applications	Western blot: 0.5-2ug/ml Immunocytochemistry: 1-2ug/ml ELISA: 0.2-1ug/ml
Limitations	This recombinant phospho-Histone H2A/H4 antibody is available for research use only.



Phospho-Histone H2A/H4 Antibody (pSer1) / HIST1H2A-HIST1H4 Early Chromatin Stress Signaling Antibody (clone RM216) for WB. Western blot analysis of HIST1H2A / Histone H2A and HIST1H4 / Histone H4 serine 1 phosphorylation (H2A/H4 pSer1) in acid extracts of human HeLa cells treated (1) or untreated (2) with nocodazole using Phospho-Histone H2A/H4 Antibody (pSer1) / HIST1H2A-HIST1H4 Early Chromatin Stress Signaling Antibody. Bands are detected at the predicted molecular weight corresponding to phosphorylated Histone H2A and Histone H4, with increased signal in treated cells consistent with stress-induced chromatin signaling and coordinated nucleosome-level phosphorylation.



Phospho-Histone H2A/H4 Antibody (pSer1) / HIST1H2A-HIST1H4 Early Chromatin Stress Signaling Antibody (clone RM216) specificity analysis. Protein binding assay demonstrating selective recognition of HIST1H2A / Histone H2A serine 1 phosphorylation (H2AS1p) and HIST1H4 / Histone H4 serine 1 phosphorylation (H4S1p). Strong signal is observed for both phosphorylated H2A and H4 proteins, while minimal to no reactivity is detected with non-phosphorylated controls, confirming high specificity for Ser1 phosphorylation across both histone targets and suitability for detecting coordinated chromatin stress signaling.



ICC/IF staining of HeLa cells using recombinant phospho-Histone H2A/H4 antibody (red). Actin filaments have been labeled with fluorescein phalloidin (green).

Description

Histone H2A (HIST1H2A) and Histone H4 (HIST1H4) share a highly conserved N-terminal serine residue at position 1 that serves as a critical regulatory site for phosphorylation in response to cellular stress and chromatin signaling events. Phosphorylation at this residue represents an early and coordinated chromatin modification that influences nucleosome stability, chromatin accessibility, and genome regulation. Phospho-Histone H2A/H4 Antibody (pSer1) / HIST1H2A-HIST1H4 Early Chromatin Stress Signaling Antibody (clone RM216) is designed to detect Histone H2A and Histone H4 phosphorylated at serine 1, enabling investigation of this conserved chromatin response. Included within the Histone H2A antibodies collection, this antibody enables analysis of histone modification patterns and chromatin regulatory mechanisms involving H2A and its variants.

HIST1H2A and HIST1H4 antibody, also referred to as Histone H2A antibody, Histone H4 antibody, and H2A/H4 pSer1 antibody in the literature, specifically recognizes serine 1 phosphorylation on both histone proteins while excluding other phosphorylated histone residues. This dual specificity reflects the structural similarity of the N-terminal tails of H2A and H4, which occupy analogous positions within the nucleosome and participate in coordinated chromatin regulation.

This recombinant rabbit monoclonal clone RM216 antibody is uniquely positioned for studies of early chromatin signaling. Phosphorylation at serine 1 is among the earliest histone modifications detected following cellular stress, including DNA damage, oxidative stress, and apoptotic signaling. It is thought to act as an initial chromatin-based signal that primes nucleosomes for subsequent remodeling and recruitment of regulatory factors.

At the molecular level, phosphorylation of serine residues introduces a negative charge into the histone tail, altering electrostatic interactions between histones and DNA. In the case of H2A and H4, phosphorylation at serine 1 is positioned at the entry-exit region of DNA on the nucleosome, where it can influence DNA wrapping and nucleosome stability. This modification can promote localized chromatin relaxation, facilitating access of transcriptional regulators, chromatin remodelers, and DNA repair machinery.

H2A/H4 Ser1 phosphorylation occupies a distinct position within the broader landscape of histone phosphorylation. While phosphorylation of H2AX at serine 139 marks DNA double-strand breaks and recruits repair complexes, and H2B serine 14 phosphorylation is associated with apoptotic chromatin condensation, Ser1 phosphorylation on H2A and H4 represents an earlier and more general chromatin response to cellular perturbation. This positions it as a proximal signal in chromatin-based stress response pathways.

Functionally, this modification has been implicated in chromatin remodeling, transcriptional regulation under stress conditions, and coordination of DNA repair processes. It may also regulate nucleosome dynamics by promoting histone

displacement or exchange, thereby enabling rapid adaptation of chromatin structure in response to signaling cues.

Importantly, the dual detection capability of this antibody allows simultaneous monitoring of Ser1 phosphorylation across both H2A and H4, capturing coordinated modification events that occur at the nucleosome level. This provides a broader and more integrated view of chromatin signaling compared to single-histone phospho antibodies.

Unlike modification-specific antibodies targeting only one histone protein, this antibody detects a conserved signaling event shared between two core histones, enhancing sensitivity to early and global chromatin changes. This makes it particularly valuable for studies of stress-induced chromatin remodeling and early epigenetic responses.

At the cellular level, Histone H2A and H4 phosphorylated at serine 1 localize to the nucleus and are associated with chromatin regions undergoing dynamic remodeling in response to stress, signaling, or damage.

This antibody supports detection of Histone H2A and Histone H4 serine 1 phosphorylation, enabling investigation of early chromatin stress signaling, nucleosome dynamics, and epigenetic mechanisms that coordinate genome regulation under changing cellular conditions.

Chromatin organization and epigenetic pathway studies may also benefit from our Histone H4 antibody targeting core nucleosome structure and nuclear chromatin biology.

Application Notes

The stated application concentrations are suggested starting points. Titration of the Phospho-Histone H2A/H4 Antibody (pSer1) / HIST1H2A-HIST1H4 Early Chromatin Stress Signaling Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A phospho-peptide corresponding to phospho-Histone H2A (pSer1) was used as the immunogen for this Phospho-Histone H2A/H4 Antibody (pSer1) / HIST1H2A-HIST1H4 Early Chromatin Stress Signaling Antibody.

Storage

Store the recombinant phospho-Histone H2A/H4 antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

Histone H2A H4 Ser1 phosphorylation antibody, H2A pSer1 H4 pSer1 antibody, phospho histone H2A Ser1 antibody, phospho histone H4 Ser1 antibody

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