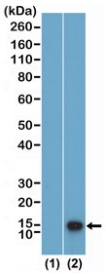
H4K12me1 Antibody / Histone H4 Lysine 12 Monomethylation Replication Chromatin Antibody [clone RM458] (R20472)

Catalog No.	Formulation	Size
R20472-100UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ug

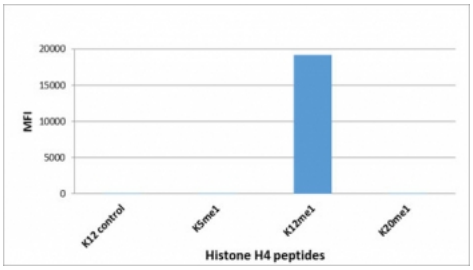
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM458
Purity	Protein A purified from animal origin-free supernatant
UniProt	P62805
Applications	Western Blot : 0.01ug/ml-0.5ug/ml ELISA : 0.5ug/ml-1ug/ml
Limitations	This H4K12me1 antibody is available for research use only.



H4K12me1 Antibody WB. Western blot analysis of histone H4 lysine 12 monomethylation in chromatin samples. Lane 1: recombinant histone H4 protein, Lane 2: acid extract of human HeLa cells. A band is detected at approximately 11 kDa, consistent with the predicted molecular weight of Histone H4 (HIST1H4). The signal in HeLa cells reflects endogenous H4K12 monomethylation associated with replication-coupled chromatin assembly and nucleosome maturation.



H4K12me1 Antibody specificity. Peptide binding analysis demonstrating selective recognition of histone H4 lysine 12 monomethylation. Strong signal is observed exclusively for the H4K12me1 peptide, with no detectable reactivity toward unmodified lysine 12 (K12 control) or other monomethylated histone H4 peptides. These results confirm high specificity of the H4K12me1 antibody for replication-associated monomethylated histone H4.

Description

Histone H4 (HIST1H4) is a core histone protein that contributes to nucleosome assembly, chromatin organization, and genome stability through modification of its N-terminal tail. H4K12me1 Antibody (clone RM458) detects monomethylation at lysine 12, a modification closely associated with replication-coupled chromatin assembly and early nucleosome maturation during DNA synthesis. This residue functions within a distinct regulatory context compared to other histone H4 modification sites, emphasizing chromatin assembly dynamics rather than fully established chromatin compaction. This antibody is part of our broader Histone H4 antibody collection, including acetylation, methylation, phosphorylation, and total H4 detection reagents for chromatin and epigenetics research.

During DNA replication, newly synthesized histone H4 is incorporated into chromatin and undergoes specific modification patterns that guide nucleosome formation and stabilization. Lysine 12 monomethylation is linked to these early assembly steps and contributes to the proper positioning and spacing of nucleosomes along newly replicated DNA. This ensures that chromatin structure is rapidly re-established following DNA synthesis while maintaining genome integrity and preventing aberrant chromatin organization.

HIST1H4 antibody, also referred to as Histone H4 antibody and H4K12 methylation antibody in the literature, is used to investigate replication-associated chromatin dynamics and nucleosome assembly pathways. H4K12me1 is thought to function as a transitional chromatin mark that supports the integration of newly deposited histones into chromatin fibers before additional modifications establish more stable or compact chromatin states. This positions the modification as a marker of chromatin maturation rather than long-term chromatin condensation or repression.

The histone H4 tail plays a critical role in mediating interactions between nucleosomes, and modification at lysine 12 influences how newly assembled chromatin adopts its structural configuration. Unlike lysine 20 methylation, which directly promotes chromatin compaction, lysine 12 monomethylation is more closely tied to the establishment phase of chromatin organization, helping ensure that nucleosomes are correctly assembled and aligned prior to higher-order folding.

Disruption of replication-coupled chromatin assembly pathways can lead to defects in genome stability, replication stress, and improper chromatin organization. As a result, H4K12me1 serves as a useful marker for studying early chromatin formation, replication timing, and nucleosome assembly processes in both normal and disease contexts.

A recombinant rabbit monoclonal antibody such as clone RM458 enables specific detection of this modification in studies focused on chromatin assembly, replication-coupled nucleosome organization, and genome stability mechanisms.

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 H4K12me1 Antibody / Histone H4 Lysine 12 Monomethylation Replication Chromatin Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A monomethyl-lysine 12 peptide corresponding to Histone H4 was used as the immunogen for the H4K12me1 Antibody / Histone H4 Lysine 12 Monomethylation Replication Chromatin Antibody.

Storage

Store the recombinant H4K12me1 antibody at -20oC.

Alternate Names

H4K12me1 antibody, Histone H4 K12 methyl antibody, HIST1H4 replication chromatin antibody, H4 nucleosome assembly antibody