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Acetyl-Histone H2A.Z (Lys4/Lys7) (D3V1I) Rabbit mAb



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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP, FC-FP, ChIP, ChIP-seq	H M R	Endogenous	14	Rabbit IgG	#P0C0S5	3015

Product Usage Information

For optimal ChIP and ChIP-seq results, use 10 µl of antibody and 10 µg of chromatin (approximately 4 x 10⁶ cells) per IP. This antibody has been validated using SimpleChIP® Enzymatic Chromatin IP Kits.

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:200
Flow Cytometry (Fixed/Permeabilized)	1:50
Chromatin IP	1:50
Chromatin IP-seq	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Acetyl-Histone H2AZ (Lys4/Lys7) recognizes endogenous levels of histone H2AZ protein only when acetylated at Lys4 and/or Lys7. This antibody does not cross-react with other acetylated histones, including histone H2A acetylated at Lys5. This antibody also detects a band around 22 kDa, which is most likely monoubiquitylated histone H2AZ that is acetylated on Lys4 and Lys7.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding acetylated Lys4 and Lys7 of human H2AZ protein.

Background

Modulation of chromatin structure plays a critical role in the regulation of transcription in eukaryotes. The nucleosome, made up of four core histone proteins (H2A, H2B, H3 and H4), is the primary building block of chromatin. In addition to the growing number of post-translational histone modifications regulating chromatin structure, cells can also exchange canonical histones with variant histones that can directly or indirectly modulate chromatin structure (1). There are five major variants of histone H2A: canonical H2A (most abundant), H2A.X, MacroH2A, H2ABbd and H2A.Z (2). Histone H2A.Z, the most conserved variant across species, functions as both a positive and negative regulator of transcription and is important for chromosome stability (2). Several homologous protein complexes, such as SWR-C (*S. cerevisiae*), TIP60 (*D. melanogaster*) and SRCAP (mammals), have been shown to catalyze the ATP-dependent exchange of H2A.Z for H2A in the nucleosome (3,4,5). This exchange of histone H2A variants changes histone-histone interactions in the nucleosome core and alters an acidic patch on the surface of the nucleosome, resulting in changes in nucleosome stability and binding of non-histone proteins such as HP1 α (6,7).

Acetylation of Histone H2AZ correlates with gene activity (8). Acetylation of Histone H2AZ on Lys4 and Lys7 occurs at the 5' end of genes and confers nucleosome destabilization and open chromatin conformation required for transcriptional activation (9-11).

Background References

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3. Mizuguchi, G. et al. (2004) *Science* 303, 343-8.
4. Kusch, T. et al. (2004) *Science* 306, 2084-7.
5. Ruhl, D.D. et al. (2006) *Biochemistry* 45, 5671-7.
6. Suto, R.K. et al. (2000) *Nat Struct Biol* 7, 1121-4.
7. Fan, J.Y. et al. (2004) *Mol Cell* 16, 655-61.
8. Millar, C.B. et al. (2006) *Genes Dev* 20, 711-22.
9. Bruce, K. et al. (2005) *Nucleic Acids Res* 33, 5633-9.
10. Ishibashi, T. et al. (2009) *Biochemistry* 48, 5007-17.
11. Valdés-Mora, F. et al. (2012) *Genome Res* 22, 307-21.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation **FC-FP:** Flow Cytometry (Fixed/Permeabilized)
ChIP: Chromatin IP **ChIP-seq:** Chromatin IP-seq

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** *D. melanogaster*
X: *Xenopus* **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** *S. cerevisiae* **Ce:** *C. elegans* **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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