Revision 1

Store at -20C

#78672

Ubiquityl-Histone H2A.Z (Lys120/Lys121) (E3J7J) Rabbit mAb

Cell Signaling TECHNOLOGY®

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3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R Mk	Endogenous	23	Rabbit IgG	#P0C0S5	3015

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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

Ubiquityl-Histone H2A.Z (Lys120/Lys121) (E3J7J) Rabbit mAb recognizes endogenous levels of histone H2A.Z protein when ubiquitylated at Lys120 and/or Lys121. This antibody shows very weak cross-reactivity with histone H2A ubiquitylated on Lys118 and Lys119. This antibody does not cross-react with other ubiquitylated proteins or free ubiquitin.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding ubiquitylated Lys121 of human histone H2A.Z 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 HP1α (6,7).

H2A.Z is a histone H2A variant protein that is critical for proper regulation of gene expression. H2A.Z is localized throughout the genome, but appears to be most concentrated at the promoters and enhancers of active genes (8). Acetylation of histone H2A.Z at promoters and enhancers confers nucleosome destabilization and open chromatin confirmation, facilitating transcriptional activation (9-11). While the bulk of histone H2A.Z appears to be excluded from constitutive heterochromatin, histone H2A.Z is found in various forms of facultative heterochromatin, including the inactive X chromosome and transcriptionally poised bivalent gene promoters (8,12). In these heterochromatic regions of the genome, H2A.Z is mono-ubiquitylated on Lys120 and Lys121 by the Ring1B ubiquitin ligase found in the Polycomb Repressor Complex 1 (PRC1) (8,12). Mono-methylation of H2A.Z on Lys120 and Lys121 facilitates repression of gene expression by inhibiting the binding of the activating BRD4 protein and facilitating the recruitment of the Polycomb Repressor Complex 2 (PRC2), the latter of which methylates histone H3 on Lys27 and facilitates transcriptional repression (8).

Background References

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12. Sarcinella, E. et al. (2007) *Mol Cell Biol* 27, 6457-68.

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

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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Limited Uses