Revision 5

#41475 Store at +4C

Ubiquityl-Histone H2A (Lys119) (D27C4) XP® Rabbit mAb (PE Conjugate)

Cell Signaling TECHNOLOGY®

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

Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
FC-FP	H M R Mk	Endogenous	Rabbit IgG	#Q96QV6	221613

Product Usage Information

Application	Dilution
Flow Cytometry (Fixed/Permeabilized)	1:50

Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.

Specificity/Sensitivity

Ubiquityl-Histone H2A (Lys119) (D27C4) XP® Rabbit mAb (PE Conjugate) recognizes endogenous levels of histone H2A protein only when ubiquitinated at Lys119. The antibody does not cross-react with other ubiquitinated proteins or free ubiquitin.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human histone H2A protein in which Lys119 is mono-ubiquitinated.

Description

This Cell Signaling Technology antibody is conjugated to phycoerythrin (PE) and tested in-house for direct flow cytometry analysis in human cells. This antibody is expected to exhibit the same species cross-reactivity as the unconjugated Ubiquityl-Histone H2A (Lys119) (D27C4) XP® Rabbit mAb #8240.

Background

The nucleosome, made up of four core histone proteins (H2A, H2B, H3, and H4), is the primary building block of chromatin. Originally thought to function as a static scaffold for DNA packaging, histones have now been shown to be dynamic proteins, undergoing multiple types of posttranslational modifications, including acetylation, phosphorylation, methylation, and ubiquitination (1). Ubiquitin is a conserved 76 amino acid peptide unit that can be covalently linked to many cellular proteins by the ubiquitination process. Three components are involved in this protein-ubiquitin conjugation process. Ubiquitin is first activated by forming a thioester complex with the activation component E1; the activated ubiquitin is subsequently transferred to the ubiquitin-carrier protein E2, then from E2 to ubiquitin ligase E3 for final delivery to the epsilon-NH_2 of the target protein lysine residue (2). Histone H2A is mono-ubiquitinated at Lys119 by the Polycomb Repressor Complex 1 (PRC1) and is critical for transcriptional silencing of the developmental *HOX* genes and X chromosome inactivation (3-6). PRC1 is composed of Bmi1 and RING1A (also RING1 or RNF1), both of which act to enhance the E3 ubiquitin ligase activity of the catalytic subunit RING1B (also RING2 or RNF2) (3,4). Histone H2A is also mono-ubiquitinated at Lys119 at sites of DNA damage. This mono-ubiquitination event requires the PRC1 components Bmi1 and RING1B, in addition to another E3 ubiquitin ligase RNF8, and contributes to subsequent recruitment of the BRCA1 complex, via binding of RAP80/UIMC1 (ubiquitin interactive motif containing 1 protein) (7-10).

Background References

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3. Wang, H. et al. (2004) *Nature* 431, 873-8.
4. Cao, R. et al. (2005) *Mol Cell* 20, 845-54.
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6. Fang, J. et al. (2004) *J Biol Chem* 279, 52812-5.
7. Ginjala, V. et al. (2011) *Mol Cell Biol* 31, 1972-82.
8. Bergink, S. et al. (2006) *Genes Dev* 20, 1343-52.
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10. Wu, J. et al. (2009) *Mol Cell Biol* 29, 849-60.

Species Reactivity

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

Applications Key

FC-FP: Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

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

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