

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



Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

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, IP, IF-IC, FC-FP, ChIP, ChIP-seq, C&R, C&T	H M R Mk	Endogenous	23	Rabbit IgG	#Q96QV6	221613

Product Usage Information

For optimal ChIP and ChIP-seq results, use 5 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.

The CUT&RUN dilution was determined using CUT&RUN Assay Kit #86652.

The CUT&Tag dilution was determined using CUT&Tag Assay Kit #77552.

Application	Dilution
Western Blotting	1:2000
Immunoprecipitation	1:100
Immunofluorescence (Immunocytochemistry)	1:800 - 1:1600
Flow Cytometry (Fixed/Permeabilized)	1:800 - 1:3200
Chromatin IP	1:100
Chromatin IP-seq	1:100
CUT&RUN	1:50
CUT&Tag	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.

For a carrier free (BSA and azide free) version of this product see product #45772.

Specificity/Sensitivity

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

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-NH₂ 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 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

- Peterson, C.L. and Laniel, M.A. (2004) *Curr Biol* 14, R546-51.
- Liu, F. and Walters, K.J. (2010) *Trends Biochem Sci* 35, 352-60.
- Wang, H. et al. (2004) *Nature* 431, 873-8.
- Cao, R. et al. (2005) *Mol Cell* 20, 845-54.

5. de Napoles, M. et al. (2004) *Dev Cell* 7, 663-76.
 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.
 9. Marteijn, J.A. et al. (2009) *J Cell Biol* 186, 835-47.
 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).

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 **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized) **ChIP:** Chromatin IP **ChIP-seq:** Chromatin IP-seq **C&R:** CUT&RUN **C&T:** CUT&Tag

Cross-Reactivity Key

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

Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

XP is a registered trademark of Cell Signaling Technology, Inc.

All other trademarks are the property of their respective owners. Visit cellsignal.com/trademarks for more information.

Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.