

PHC1 (1F3F3) Mouse mAb

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Applications: W, IP, ChIP, ChIP-seq	Reactivity: H M	Sensitivity: Endogenous	MW (kDa): 130	Source/Isotype: Mouse IgG2b	UniProt ID: #P78364	Entrez-Gene Id: 1911
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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	1:50
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

PHC1 (1F3F3) Mouse mAb recognizes endogenous levels of total PHC1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with recombinant protein specific to the carboxy terminus of human PHC1 protein.

Background

The polycomb group (PcG) proteins contribute to the maintenance of cell identity, stem cell self-renewal, cell cycle regulation, and oncogenesis by maintaining the silenced state of genes that promote cell lineage specification, cell death, and cell-cycle arrest (1-4). Polycomb group proteins regulate cell proliferation and senescence through repression of the p16Ink4a and p19Arf genes, and are essential in maintaining adult hematopoietic, neural stem cells, and embryonic stem cells (3-5). PcG proteins are found in two complexes that cooperate to maintain long-term gene silencing through epigenetic chromatin modifications. DNA-binding transcription factors recruit the EED-EZH2 complex to genes, which methylates histone H3 on Lys27 (6). Methylation of Lys27 facilitates the recruitment of the PRC1 complex, which ubiquitinylates histone H2A on Lys119 (7). PRC1 is composed of BMI1 and RING1A, which enhance the E3 ubiquitin ligase activity of the RING1B catalytic subunit (8). Polyhomeotic-like 1 (PHC1) is one of several additional PRC1 complex proteins that are required to maintain the silenced state of PRC1 target genes and mediate proper anterior-posterior specification during development (9). Mutations in the corresponding *PHC1* gene correlate with an autosomal recessive form of primary microcephaly characterized by low-to-normal cognitive function and impaired DNA repair (10).

Background References

1. Boyer, L.A. et al. (2006) *Nature* 441, 349-53.
2. Lee, T.I. et al. (2006) *Cell* 125, 301-13.
3. Park, I.K. et al. (2003) *Nature* 423, 302-5.
4. Molofsky, A.V. et al. (2003) *Nature* 425, 962-7.
5. Molofsky, A.V. et al. (2005) *Genes Dev* 19, 1432-7.
6. Cao, R. and Zhang, Y. (2004) *Mol Cell* 15, 57-67.
7. Wang, H. et al. (2004) *Nature* 431, 873-8.
8. Cao, R. et al. (2005) *Mol Cell* 20, 845-54.
9. Isono, K. et al. (2005) *Mol Cell Biol* 25, 6694-706.
10. Awad, S. et al. (2013) *Hum Mol Genet* 22, 2200-13.

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 **ChIP:** Chromatin IP **ChIP-seq:** Chromatin IP-seq

Cross-Reactivity Key

H: Human **M:** Mouse

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