



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

Store at -20C
#9672

Acetyl-Histone H4 (Lys5) Antibody

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

Applications: W, IP, IHC-P, IF-1C, ChIP	Reactivity: H M R Mk	Sensitivity: Endogenous	MW (kDa): 11	Source/Isotype: Rabbit	UniProt ID: #P62805	Entrez-Gene Id: 8359
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Product Usage Information

For optimal ChIP results, use 20 μ l of antibody and 10 μ g of chromatin (approximately 4×10^6 cells) per IP. This antibody has been validated using SimpleChIP[®] Enzymatic Chromatin IP Kits.

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:25
Immunohistochemistry (Paraffin)	1:1600
Immunofluorescence (Immunocytochemistry)	1:800
Chromatin IP	1:25

Storage

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

Specificity/Sensitivity

Acetyl-Histone H4 (Lys5) Antibody detects endogenous levels of histone H4 only when acetylated on Lys5. This antibody does not cross-react with histone H4 acetylated on lysines 8, 12, or 16.

Species predicted to react based on 100% sequence homology

Chicken, *D. melanogaster*, *Xenopus*, Zebrafish, Bovine, Pig, *C. elegans*, Horse

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the amino terminus of histone H4 in which Lys5 is acetylated. Antibodies are purified by protein A and peptide affinity chromatography.

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 post-translational modifications, including acetylation, phosphorylation, methylation, and ubiquitination (1,2). Histone acetylation occurs mainly on the amino-terminal tail domains of histones H2A (Lys5), H2B (Lys5, 12, 15, and 20), H3 (Lys9, 14, 18, 23, 27, 36, and 56), and H4 (Lys5, 8, 12, and 16) and is important for the regulation of histone deposition, transcriptional activation, DNA replication, recombination, and DNA repair (1-3). Hyper-acetylation of the histone tails neutralizes the positive charge of these domains and is believed to weaken histone-DNA and nucleosome-nucleosome interactions, thereby destabilizing chromatin structure and increasing the accessibility of DNA to various DNA-binding proteins (4,5). In addition, acetylation of specific lysine residues creates docking sites for a protein module called the bromodomain, which binds to acetylated lysine residues (6). Many transcription and chromatin regulatory proteins contain bromodomains and may be recruited to gene promoters, in part, through binding of acetylated histone tails. Histone acetylation is mediated by histone acetyltransferases (HATs), such as CBP/p300, GCN5L2, PCAF, and Tip60, which are recruited to genes by DNA-bound protein factors to facilitate transcriptional activation (3). Deacetylation, which is mediated by histone deacetylases (HDAC and sirtuin proteins), reverses the effects of acetylation and generally facilitates transcriptional repression (7,8).

Histone H4 lysine 5 is acetylated by multiple HAT proteins. Acetylation by Esa1p in yeast, or Tip60 in mammalian cells, may contribute to both transcriptional activation and DNA repair, including non-homologous end joining and replication-coupled repair (9-12). Histone H4 lysine 5 is also acetylated by CBP/p300, a family of HAT proteins that function as transcriptional co-activators for a large number of transcription factors (13).

Background References

- Peterson, C.L. and Laniel, M.A. (2004) *Curr Biol* 14, R546-51.
- Jaskelioff, M. and Peterson, C.L. (2003) *Nat Cell Biol* 5, 395-9.
- Roth, S.Y. et al. (2001) *Annu Rev Biochem* 70, 81-120.
- Workman, J.L. and Kingston, R.E. (1998) *Annu Rev Biochem* 67, 545-79.
- Hansen, J.C. et al. (1998) *Biochemistry* 37, 17637-41.

6. Yang, X.J. (2004) *Bioessays* 26, 1076-87.
 7. Haberland, M. et al. (2009) *Nat Rev Genet* 10, 32-42.
 8. Haigis, M.C. and Sinclair, D.A. (2010) *Annu Rev Pathol* 5, 253-95.
 9. Clarke, A.S. et al. (1999) *Mol Cell Biol* 19, 2515-26.
 10. Kimura, A. and Horikoshi, M. (1998) *Genes Cells* 3, 789-800.
 11. Bird, A.W. et al. (2002) *Nature* 419, 411-5.
 12. Ikura, T. et al. (2000) *Cell* 102, 463-73.
 13. Schiltz, R.L. et al. (1999) *J Biol Chem* 274, 1189-92.
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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 IHC-P: Immunohistochemistry (Paraffin) IF-IC: Immunofluorescence (Immunocytochemistry) ChIP: Chromatin IP
Cross-Reactivity Key	H: Human M: Mouse R: Rat Mk: Monkey
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