Revision 3

Store at -20C

#41328

Histone H1.4 (D4J5Q) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IF-IC, ChIP	H Mk	Endogenous	30	Rabbit IgG	#P10412	3008

Product Usage Information

For optimal ChIP results, use 10 µl of antibody and 10 µg of chromatin (approximately 4 x 10^6 cells) per IP. This antibody has been validated using SimpleChIP® Enzymatic Chromatin IP Kits.

Application	Dilution
Western Blotting	1:1000
Immunofluorescence (Immunocytochemistry)	1:200 - 1:800
Chromatin IP	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

Histone H1.4 (D4J5Q) Rabbit mAb recognizes endogenous levels of total histone H1.4 protein. This antibody also cross reacts with histone H1.5 (UniProt P16401) and weakly with histones H1.1 (UniProt Q02539), H1.2 (UniProt P16403), and H1.3 (UniProt P16402).

Species predicted to react based on 100% sequence homology

Hamster, Bovine, Dog

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala176 of human histone H1.4 protein.

Background

Histones are evolutionarily conserved proteins that play a vital role in the compaction, storage, and regulation of DNA within the eukaryotic nucleus. The basic subunit of chromatin, the nucleosome core particle, is composed of DNA wound around two copies each of the core histone proteins H2A, H2B, H3, and H4 (1-3). Formation of higher order chromatin structure is facilitated through the binding of linker histone H1 to the nucleosome particle (chromatosome) (4-6). In humans and mice, there are 11 distinct histone H1 variants, which include the somatic variants (H1.1, H1.2, H1.3, H1.4, and H1.5) that are expressed ubiquitously, and cell type specific variants such as H1t found in the testis and H1.0 expressed in terminally differentiated cells (6-10). Binding of histone H1 to chromatin limits accessibility of DNA to other proteins by stabilizing nucleosome positioning, competing for binding sites, and limiting the activity of chromatin remodeling proteins such as the SWI/SNF complex (6,11-14). Histone H1 binding is highly dynamic and is thought to be regulated by post-translational modifications (6). For example, cell cycle regulated phosphorylation of histone H1 leads to chromatin condensation and decondensation depending on the site of phosphorylation and histone H1.4 Lys34 acetylation by GCN5 has been linked to increased mobility of H1.4 and transcriptional activation (6, 15-18).

Background References

1. Kornberg, R.D. (1974) *Science* 184, 868-71.
2. Kornberg, R.D. and Thomas, J.O. (1974) *Science* 184, 865-8.
3. Workman, J.L. and Kingston, R.E. (1998) *Annu Rev Biochem* 67, 545-79.
4. Thoma, F. et al. (1979) *J Cell Biol* 83, 403-27.
5. Carruthers, L.M. et al. (1998) *Biochemistry* 37, 14776-87.
6. Harshman, S.W. et al. (2013) *Nucleic Acids Res* 41, 9593-609.
7. Eick, S. et al. (1989) *Eur J Cell Biol* 49, 110-5.
8. Carozzi, N. et al. (1984) *Science* 224, 1115-7.
9. Drabent, B. et al. (1991) *Gene* 103, 263-8.
10. Pehrson, J.R. and Cole, R.D. (1982) *Biochemistry* 21, 456-60.
11. Bustin, M. et al. (2005) *Mol Cell* 17, 617-20.
12. Hill, D.A. and Imbalzano, A.N. (2000) *Biochemistry* 39, 11649-56.
13. Ramachandran, A. et al. (2003) *J Biol Chem* 278, 48590-601.
14. Horn, P.J. et al. (2002) *Nat Struct Biol* 9, 263-7.
15. Hohmann, P. et al. (1976) *J Biol Chem* 251, 3685-92.
16. D'Anna, J.A. et al. (1978) *Nucleic Acids Res* 5, 3195-207.
17. Matsumoto, Y. et al. (1980) *Nature* 284, 181-3.
18. Kamieniarz, K. et al. (2012) *Genes Dev* 26, 797-802.

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 **IF-IC:** Immunofluorescence (Immunocytochemistry) **ChIP:** Chromatin IP

Cross-Reactivity Key

H: Human **Mk:** Monkey

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Limited Uses