SANTA CRUZ BIOTECHNOLOGY, INC.

Histone H4 (N-18): sc-8657

BACKGROUND

Eukaryotic histones are basic and water soluble nuclear proteins that form hetero-octameric nucleosome particles by wrapping 146 base pairs of DNA in a left-handed super-helical turn sequentially to form chromosomal fiber. Two molecules of each of the four core histones (H2A, H2B, H3, and H4) form the octamer; formed of two H2A-H2B dimers and two H3-H4 dimers, forming two nearly symmetrical halves by tertiary structure. Over 80% of nucleosomes contain the linker Histone H1, derived from an intronless gene, that interacts with linker DNA between nucleosomes and mediates compaction into higher order chromatin. Histones are subject to posttranslational modification by enzymes primarily on their N-terminal tails, but also in their globular domains. Such modifications include methylation, citrullination, acety-lation, phosphorylation, sumoylation, ubiquitination and ADP-ribosylation.

REFERENCES

1. Rupp, R.A., et al. 2005. Gene regulation by histone H1: new links to DNA methylation. Cell 123: 1178-1179.
2. Martin, C., et al. 2005. The diverse functions of histone lysine methylation. Nat. Rev. Mol. Cell. Biol. 6: 838-849.
3. Gunjan, A., et al. 2005. Regulation of histone synthesis and nucleosome assembly. Biochimie 87: 625-635.
4. Bode, A.M., et al. 2005. Inducible covalent posttranslational modification of histone H3. Sci. STKE 2005: re4.
5. Bustin, M., et al. 2005. The dynamics of histone H1 function in chromatin. Mol. Cell 17: 617-620.
6. de la Cruz, X., et al. 2005. Do protein motifs read the histone code? Bioessays 27: 164-175.
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SOURCE

Histone H4 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Histone H4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8657 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

Histone H4 (N-18) is recommended for detection of Histone H4 of mouse, rat, human, *Drosophila melanogaster*, *Xenopus laevis* and *Caenorhabditis elegans* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

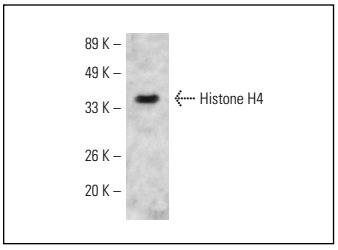
Histone H4 (N-18) is also recommended for detection of Histone H4 in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of acetylated and non-acetylated Histone H4: 11 kDa.

Molecular Weight of hyper-acetylated Histone H4: 35 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, HeLa whole cell lysate: sc-2200 or SK-N-MC nuclear extract: sc-2154.

DATA



Histone H4 (N-18): sc-8657. Western blot analysis of acetylated Histone H4 expression in HeLa nuclear extract.

SELECT PRODUCT CITATIONS

1. Kondratov, R.V., et al. 2003. BMAL1-dependent circadian oscillation of nuclear CLOCK: post-translational events induced by dimerization of transcriptional activators of the mammalian clock system. Genes Dev. 17: 1921-1932.
2. Glowczewski, L., et al. 2004. Yeast chromatin assembly complex 1 protein excludes nonacetylatable forms of Histone H4 from chromatin and the nucleus. Mol. Cell. Biol. 24: 10180-10192.
3. Balakrishnan, L., et al. 2007. Histone hyperacetylation in the coding region of chromatin undergoing transcription in SV40 minichromosomes is a dynamic process regulated directly by the presence of RNA polymerase II. J. Mol. Biol. 365: 18-30.
4. Balakrishnan, L., et al. 2007. Histone hyperacetylation during SV40 transcription is regulated by p300 and RNA polymerase II translocation. J. Mol. Biol. 371: 1022-1037.
5. Tokoro, M., et al. 2010. Deposition of acetylated histones by RNAP II promoter clearance may occur at onset of zygotic gene activation in preimplantation mouse embryos. J. Reprod. Dev. 56: 607-615.

RESEARCH USE

For research use only, not for use in diagnostic procedures.