



Histone H3.3A (h3): 293T Lysate: sc-159580

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. Histones are subject to posttranslational modification by enzymes primarily on their N-terminal tails, but also in their globular domains. Histone H3.3A, also known as H3F3, is a 136 amino acid nuclear protein that is expressed throughout the cell cycle and is the predominant form of Histone H3 in non-dividing cells. Characteristic of most Histone proteins, Histone H3.3A can undergo a variety of post-translational modifications, including acetylation, phosphorylation, methylation and ubiquitination, all of which may modify the activity of Histone H3.3A.

REFERENCES

1. Schurter, B.T., Koh, S.S., Chen, D., Bunick, G.J., Harp, J.M., Hanson, B.L., Henschen-Edman, A., Mackay, D.R., Stallcup, M.R. and Aswad, D.W. 2001. Methylation of Histone H3 by coactivator-associated arginine methyltransferase 1. *Biochemistry* 40: 5747-5756.
2. Chicas, A., Forrest, E.C., Sepich, S., Cogoni, C. and Macino, G. 2005. Small interfering RNAs that trigger posttranscriptional gene silencing are not required for the Histone H3 Lys9 methylation necessary for transgenic tandem repeat stabilization in *Neurospora crassa*. *Mol. Cell. Biol.* 25: 3793-3801.
3. Fischle, W., Tseng, B.S., Dormann, H.L., Ueberheide, B.M., Garcia, B.A., Shabanowitz, J., Hunt, D.F., Funabiki, H. and Allis, C.D. 2005. Regulation of HP1-chromatin binding by Histone H3 methylation and phosphorylation. *Nature* 438: 1116-1122.
4. Bode, A.M. and Dong, Z. 2005. Inducible covalent posttranslational modification of Histone H3. *Sci. STKE* 2005: re4.
5. Dialynas, G.K., Makatsori, D., Kourmouli, N., Theodoropoulos, P.A., McLean, K., Terjung, S., Singh, P.B. and Georgatos, S.D. 2006. Methylation-independent binding to Histone H3 and cell cycle-dependent incorporation of HP1 β into heterochromatin. *J. Biol. Chem.* 281: 14350-14360.
6. Online Mendelian Inheritance in Man, OMIM™. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 601128. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
7. Borde, V., Robine, N., Lin, W., Bonfils, S., Géli, V. and Nicolas, A. 2009. Histone H3 lysine 4 trimethylation marks meiotic recombination initiation sites. *EMBO J.* 28: 99-111.
8. Jin, Y., Rodriguez, A.M. and Wyrick, J. 2009. Genetic and genome-wide analysis of simultaneous mutations in acetylated and methylated lysine residues in Histone H3 in *Saccharomyces cerevisiae*. *Genetics* 181: 461-472.
9. Chang, Q., Zhang, Y., Beezhold, K.J., Bhatia, D., Zhao, H., Chen, J., Castranova, V., Shi, X. and Chen, F. 2009. Sustained JNK1 activation is associated with altered histone H3 methylations in human liver cancer. *J. Hepatol.* 50: 323-33.

CHROMOSOMAL LOCATION

Genetic locus: H3F3A (human) mapping to 1q42.12.

PRODUCT

Histone H3.3A (h3): 293T Lysate represents a lysate of human Histone H3.3A transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

Histone H3.3A (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive Histone H3.3A antibodies. Recommended use: 10-20 μ l per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

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