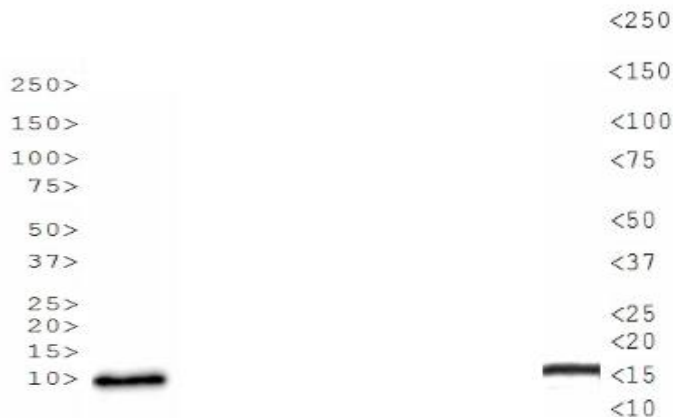


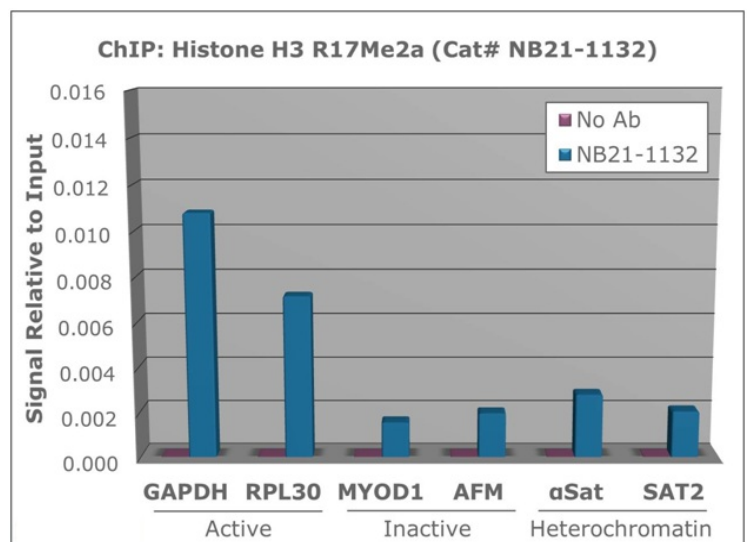
**Description:** Histone H3 asymmetric dimethyl arginine 17 antibody **Cat#:** NB21-1132  
**Species:** Human, C. elegans **Gene:** HIST2H3C  
**Applications:** Westerns, CHIP, ICC, dot blots, **Ab Type:** Rabbit affinity purified pAb  
**Modification:** R17Me2a **Marker:** H3R17Me2a  
**Immunogen:** Synthetic peptide containing monomethylated arginine (MMA) 2 of histone H3  
**Gene Symbol:** HIST2H3C Entrez: 126961 (hu), 260423 (mu) Swiss Prot: Q71DI3 (hu), P84228 (mu)

**Images:**

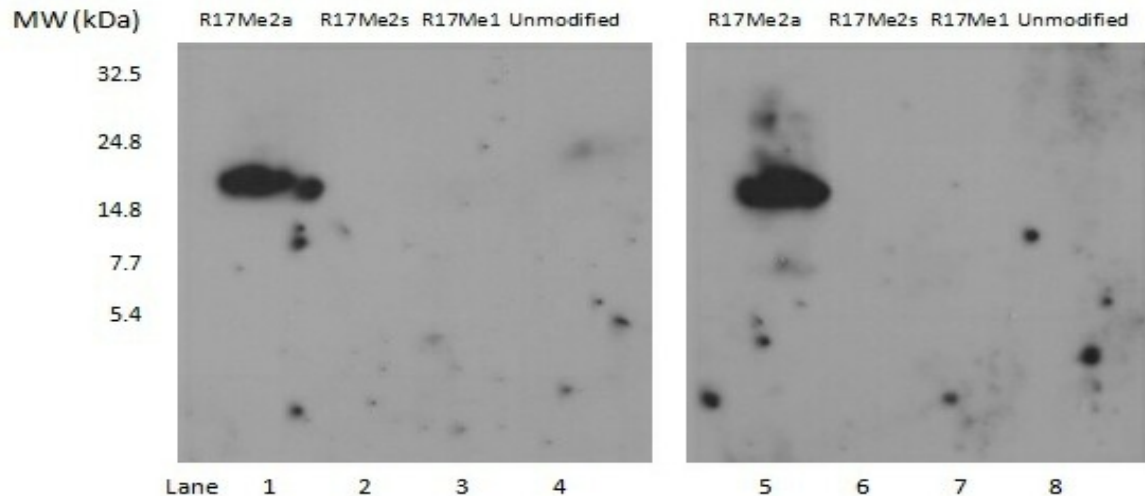
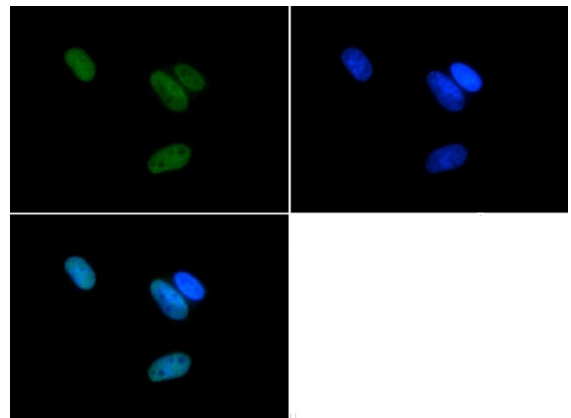


**Western Blot: Histone H3R17 ADMA Ab Cat #NB21-1132.** WB analysis using C. elegans embryo lysate (left) or in NIH/3T3 histone preps.

**Chromatin Immunoprecipitation:** ChIP of Histone H3R17 ADMA Ab [Cat #NB21-1132] - 2 ug of H3R17 ADMA Antibody was used to IP DNA from fixed HeLa cells; the control was performed with no antibody. DNA was measured by qRT-PCR and normalized to total input (input=1).



**Immunocytochemistry:** Histone H3R17 ADMA Ab [Cat #NB21-1132] - Histone H3R17Me2a (ADMA) antibody was tested in HeLa cells with FITC (green). Nuclei were counterstained with Dapi (blue). The lower panel is the merged fluorescent channels.



Western blot analysis of affinity purified H3R17Me2a antibody Cat #NB21-1132 . Full length, synthetic histone H3 was chemically synthesized de novo with the indicated modifications at R17 (Epi-Syn™ H3 proteins). The proteins were run on an SDS-PAGE gel, transferred to nitrocellulose and probed with the Epi-Plus® affinity purified antibody, Cat# NB21-1132 specific for H3R17Me2a. The antibody was used at 1ug/ml, the secondary Ab (goat x rb, HRP, 1:40,000 (Jackson Labs) and ECL detection was performed using ECL (Max-ECL™, 21st Century Biochemicals, Inc.). Lanes 1-4 are Lot #2A-NB211132 and Lanes 5-8 are Lot #2B-NB211132.

### Background:

The nucleosome is comprised of 146 bp of DNA wrapped around a series of histone proteins arranged as an octamer consisting of 2 copies of histone H2A, H2B, H3 and H4 (1). Within the nucleosome core the histone proteins are covalent modified at specific residues predominantly within the N-terminal tail including lysine (acetylation, methylation, SUMOylation, and ubiquitylation), arginine methylation and citrullination, serine and threonine phosphorylation, as well as proline isomerization (2,3). The lysine side chains can carry up to three methyl groups (mono-, di- and tri-methylated forms) and the arginine side chain can be monomethylated or can be dimethylated as the symmetric or asymmetric forms. The modifications show temporal, disease-specific, and other types of cell-specific regulation and there are specific families of enzymes that regulate the methylation, demethylation, acetylation, deacetylation and other modifications (4-8).

Arginine methylation is found on both nuclear and cytoplasmic proteins. Protein arginine N-methyltransferases (PRMTs) catalyze the methylation of arginine residues. Type I PRMTs (PRMT 1, 3, 4 [aka CARM1], 5, and 8) catalyze the formation of monomethyl arginine (MMA) which is then converted to asymmetric dimethyl arginine (SDMA). Type II PRMTs (PRMT 5, 7, and FBXO11) also regulates a number of different cellular processes, including transcriptional regulation, DNA damage repair, RNA metabolism, protein trafficking and signal transduction. PRMTs methylate glycine- and arginine-rich

patches (GAR motifs) and it has also been shown that PRMT4 (CARM1) and PRMT5 can methylate PGM motifs (proline, glycine, methionine and arginine rich domains). The activity of PRMT2 and 9 has yet to be determined.

1. Hayes JJ and Hansen JC. Nucleosomes and the chromatin fiber. *Curr Opin Genet Dev.* [2001] 11(2):124-9.
2. Berger SL. The complex language of chromatin regulation during transcription. *Nature.* [2007] 447(7143):407-12.
3. Zee, BM, Levin, RS, DiMaggio, PA and Garcia, BA. Global Turnover of histone post-translational modifications and variants in human cells. *Epigenetics and Chromatin.* [2010] 3:22.
4. Couture JF, Trievel RC. Histone-modifying enzymes: encrypting an enigmatic epigenetic code. *Curr Opin Struct Biol.* [2006] 16(6):753–60.
5. Heintzman ND, Stuart RK, Hon G, Fu Y, Ching CW, Hawkins RD, Barrera LO, Van Calcar S, Qu C, Ching KA, Wang W, Weng Z, Green RD, Crawford GE, Ren B. Distinct and predictive chromatin signatures of transcriptional promoters and enhancers in the human genome. *Nat Genet.* [2007] 39(3):311–8.
6. Barski A, Cuddapah S, Cui K, Roh TY, Schones DE, Wang Z, Wei G, Chepelev I, Zhao K. High-resolution profiling of histone methylations in the human genome. *Cell.* [2007] 129(4):823–37.
7. Bernstein BE, Meissner A, Lander ES. The mammalian epigenome. *Cell.* [2007] 128(4):669–81.
8. Rando OJ. Global patterns of histone modifications. *Curr Opin Genet Dev.* [2007] 17(2):94–9.

**Dilutions:** WB - 1:1,000; Dot blot 1:1000, CHIP 2-5 micrograms per 10<sup>6</sup> cells.

**Unit Size:** 50 micrograms (0.05mg) and 25 micrograms (0.025mg); concentration of lot 2B-NB211132 – 0.83mg/ml

**Storage:** Short term storage at 4°C, long term storage at -20°C. Avoid unnecessary freeze-thaw.

**Buffer:** PBS, pH 7.4 with 30% glycerol

**Preservative:** 0.05% sodium azide

**Limitations:** This product is for research purposes only and is not approved for use in clinical diagnostics or for use in humans.

[Ask a question](#)

**Twentyfirst Century Biochemicals, Inc. 260 Cedar Hill Street, Marlborough, MA 01752**

**P:508.303.8222 F:508.3038333 E: [info@21stcenturybio.com](mailto:info@21stcenturybio.com)**

**Epi-Plus™ Epigenetic Antibodies are made in collaboration with Novus Biologicals, LLC**

© 2011 Twentyfirst Century Biochemicals, Inc. All rights reserved.

Epi-SynH3™, Epi-SynH4™, and MS Check™ are wholly owned trademarks of Twentyfirst Century Biochemicals, Inc; Epi-Plus™ is a shared trademark of Twentyfirst Century Biochemicals, Inc. and Novus Biologicals, LLC.