

## Histone H2A

**CATALOG NO.:** HMT-11-146

**LOT NO.:**

**DESCRIPTION:** Full-length, untagged human recombinant histone H2A (residues 2-130; Genbank Accession # NM\_021052; MW = 14.1 kDa) expressed in *E. coli*. One of the four, core nucleosomal histones, H2A forms dimers with histone H2B, two of which associate with the H3-H4 tetramer (H3-H4)<sub>2</sub>, forming the core octamer of the nucleosome (see review<sup>1</sup>). Histone H2A is subject to multiple regulatory post-translational modifications including ubiquitination<sup>2</sup>, phosphorylation<sup>3</sup>, acetylation<sup>4</sup>, arginine<sup>5</sup> and lysine<sup>6</sup> methylation and crotonylation<sup>7</sup>. RBC's Histone useful for the assay of various protein arginine methyltransferases (e.g. PRMT1, PRMT5) either by radiolabeling with [<sup>3</sup>H]-S-adenosylmethionine (e.g. gel electrophoresis/autoradiography or filterplate/scintillation counting) or by non-radiolabeled methods (e.g. coupled assays detecting the product S-adenosylhomocysteine).

**PURITY:** >90% by SDS-PAGE.

**ASSAY CONDITIONS:** Methyltransferase assays (see figure, below) were performed with histone H2A and [<sup>3</sup>H]-SAM as substrates. Activity was determined as TCA-precipitated counts in a scintillation/filter plate assay (Multiscreen FB, Topcount). Reaction conditions: 50 mM Tris-HCl, pH 8.5, 50 mM NaCl, 5 mM MgCl<sub>2</sub>, 1 mM DTT, 1 mM PMSF, 30°C, 60 min.

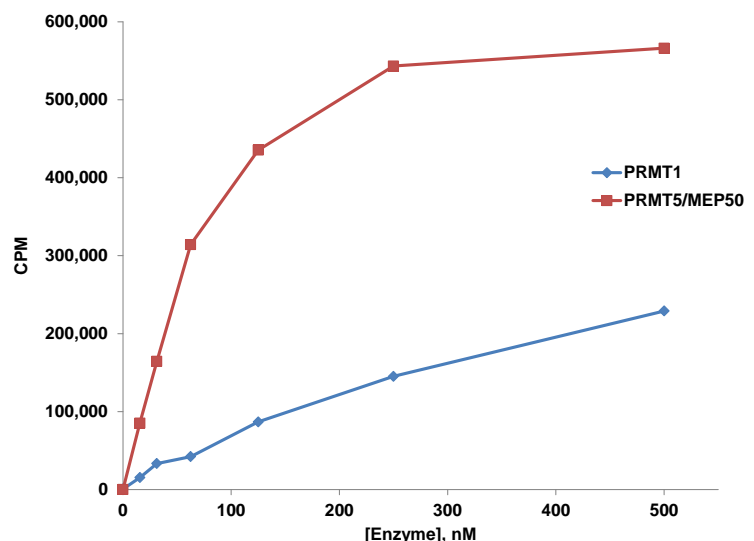
**SUPPLIED AS:** \_\_\_ µg/µl total protein in in 50 mM HEPES/NaOH pH 7.1, 10 mM KCl, 1 mM DTT, 1 mM EDTA, 10% glycerol (v/v) as determined by OD<sub>280</sub>

**STORAGE:** -70°C. Thaw quickly and store on ice before use. The remaining, unused, undiluted protein should be snap frozen, for example in a dry/ice ethanol bath or liquid nitrogen. Minimize freeze/thaws if possible, but very low volume aliquots (<5 µl) or storage of diluted enzyme is not recommended.

**REFERENCES:** 1) J.J. Wyrick *et al. Biochim. Biophys. Acta* 2012 **1819** 892; 2) H. Wang *et al. Nature*. 2004 **431** 873; 3) Y. Zhang *et al. J. Biol. Chem.* 2004 **279** 21866; 4) D. Bonenfant *et al. Mol. Cell. Proteomics* 2006 **5** 541; 5) T.L. Branscombe *et al. J. Biol. Chem.* 2001 **276** 32971; 6) C.L. Peterson & M.A. Laniel *Curr. Biol.* 2004 **14** R546; 7) M. Tan *et al. Cell* 2011 **146** 1016



**Coomassie blue stained SDS-PAGE (16% acrylamide) of 2 µg of purified Histone H2A.** MW markers (left) are, from top, 220, 160, 120, 100, 90, 80, 70, 60, **50**, 40, 30, 25, 20, 15, 10 kDa.



**Assay of Protein Arginine Methyltransferases with Histone H2A.** The indicated concentrations of either PRMT1 (RBC Cat. #HMT-11-119) or PRMT5/MEP50 (RBC Cat. #HMT-22-148) were assayed as described above in 25 µL reactions, 60 min., 30°C, with 1 µM [<sup>3</sup>H]-SAM and 5 µM histone H2A as substrates.

This product is NOT intended for therapeutic or diagnostic use in animals or in humans.