

## PRMT5(C449S)/MEP50 Complex (Protein Arginine Methyltransferase 5/Methylosome Protein 50)

CATALOG NO.: HMT-22-434

LOT NO.:

**DESCRIPTION:** Mutant human recombinant PRMT5 (residues 2-637 (C-terminus) with cysteine substituted for serine-449; Genbank Accession # NM\_006109; N-terminal Strep and Flag-tags; MW = 73.7) in complex with human recombinant MEP50 (residues 2-342 (C-term.), NM\_024102; MW = 39.9 kDa). Produced by co-expression in an insect cell/baculovirus expression system. PRMT5, a type II arginine methyltransferase, catalyzes the transfer of a methyl group from S-adenosyl-L-methionine (SAM) to an ω-nitrogen of the guanidino function of protein L-arginine residues (ω-monomethylation) and the transfer of a second methyl group to the other ω-nitrogen, yielding symmetric dimethylarginine (sDMA)<sup>1</sup>. Structural studies show the PRMT5/MEP50 complex to consist of four heterodimers<sup>2</sup>. PRMT5 catalytic activity is weak when not complexed with MEP50, which may be due to MEP50's role in substrate binding<sup>3</sup>. A component of multiple macromolecular complexes (e.g. 20S Methylosome, Swi/Snf), PRMT5/MEP50 is located in both the nucleus and cytoplasm, modifies a variety of substrates and plays roles in chromatin remodeling, RNA processing, and regulation of gene expression, cell growth and differentiation (see reviews<sup>2,4,5</sup>). Its pro-proliferative effects<sup>6,9</sup> and their association with multiple cancers (lung<sup>10,11</sup>, breast<sup>9</sup>, ovarian<sup>12</sup>, lymphoid<sup>7,8</sup>) has led to increasing interest in PRMT5 as a target for anti-cancer therapy.

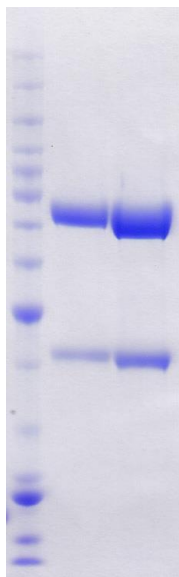
**PURITY:** >95% by SDS-PAGE.

**ASSAY CONDITIONS:** RBC's PRMT5(C449S)/MEP50 Complex displays substantial methyltransferase activity from [<sup>3</sup>H]-SAM to several protein substrates (histone H2A, histone H4, GST-GAR); see Figure, below. 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, 30°C, 60 min. with substrates as indicated.

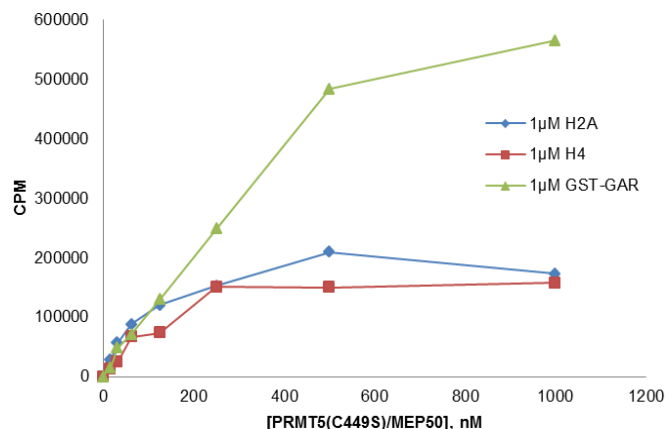
**SUPPLIED AS:** \_\_\_ μg/μl total protein in 50 mM Tris/HCl, pH 8.0, 110 mM NaCl, 2.2 mM KCl, 3 mM TCEP, 20% (v/v) glycerol as determined by OD<sub>280</sub>

**STORAGE:** -70°C. Thaw quickly and store on ice before use. The remaining, unused, undiluted enzyme should be refrozen quickly by, for example, snap freezing in a dry/ice ethanol bath or liquid nitrogen. Freezing and storage of diluted enzyme is not recommended.

**REFERENCES:** 1) T.L. Branscombe *et al. J. Biol. Chem.* 2001 **276** 32971; 2) S. Antonyamy *et al. Proc. Natl. Acad. Sci. USA* 2012 **109** 17960; 3) M. Ho *et al. PLOS One* 2013 **8** e57008; 4) S.S. Wolf *Cell Mol. Life Sci.* 2009 **66** 2109; 5) V. Kharkanis *et al. Trends Biochem. Sci.* 2011 **36** 633; 6) S. Pal *et al. Mol. Cell. Biol.* 2004 **24** 9630; 7) L. Wang *et al. Mol. Cell. Biol.* 2008 **28** 6262; 8) P. Aggarwal *et al. Cancer Cell* 2010 **18** 329; 9) M.A. Powers *et al. Cancer Res.* 2011 **71** 5579; 10) T.Y. Wei *et al. Cancer Sci.* 2012 **103** 1640; 11) Z. Gu *et al. Biochem. J.* 2012 **446** 235; 12) X. Bao *et al. J. Histochem. Cytochem.* 2013 **61** 206;



**Coomassie blue stained SDS-PAGE (4-12% acrylamide) 4 and 10 μg of RBC PRMT5 (C449S)/MEP50.** MW markers (left) are, from top, 220, 160, 120, 100, 90, 80, 70, 60, 50, 40, 30, 25, 20, 15, 10 kDa.



**Methyltransferase Activity of PRMT5(C449S)/MEP50.** Methylation determined as TCA-precipitable counts in a scintillation/filter plate assay. Reactions were 60 min., 30°C, with 1 μM [<sup>3</sup>H]-SAM and 1 μM (H2A, H4 or GST-GAR) protein substrate.

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