

PRMT3

(Protein arginine N-methyltransferase 3; HRMT1L3)

CATALOG NO.: HMT-11-113

LOT NO.:

DESCRIPTION: Human recombinant PRMT3 (residues 2-531 (C-terminus); Genbank Accession # NM_005788) expressed with an N-terminal His-tag, in *E. coli*. MW = 62.2 kDa. PRMT3, a type I 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 same nitrogen, yielding asymmetric dimethylarginine (ADMA)¹. PRMT3 is primarily localized to the cytoplasm and expressed in multiple tissues¹. PRMT3 is unique among the PRMTs in containing an N-terminal zinc-finger domain required for substrate recognition^{1,2}. PRMT3 is associated with ribosomes and its major *in vivo* substrate would appear to be ribosomal protein S2 (rpS2)^{3,4}, which is bound by the zinc-finger domain⁴. Interaction between the *S. pombe* PRMT3 homolog and rpS2, but not rpS2 methylation, is required for production of normal levels of the 40S ribosomal subunit⁵. The tumor suppressor DAL-1/4.1B binds PRMT3 and inhibits its activity⁶. The capacity of DAL-1/4.1B to induce apoptosis in the MCF-7 breast cancer cell line is enhanced by elevating cellular levels of the methyltransferase product/inhibitor S-adenosylhomocysteine, suggesting PRMT3 as a potential target for anti-cancer therapeutics⁷.

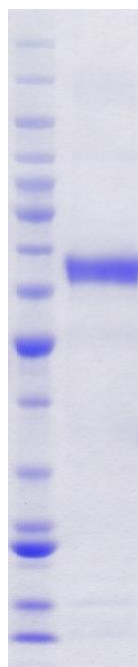
PURITY: >80% by SDS-PAGE.

ASSAY CONDITIONS: RBC's PRMT3 displays histone methyltransferase activity at enzyme concentrations of 20 nM and above, 30°C, with recombinant human histone H4 or calf thymus histone H3 in the HMT HotSpotSM Assay format. Reaction conditions are: 50 mM Tris-HCl, pH 8.5, 50 mM NaCl, 5 mM MgCl₂, 1 mM DTT, 1 mM PMSF, histone H4 (5 μ M) or histone H3 (5 μ M), [³H]-SAM.

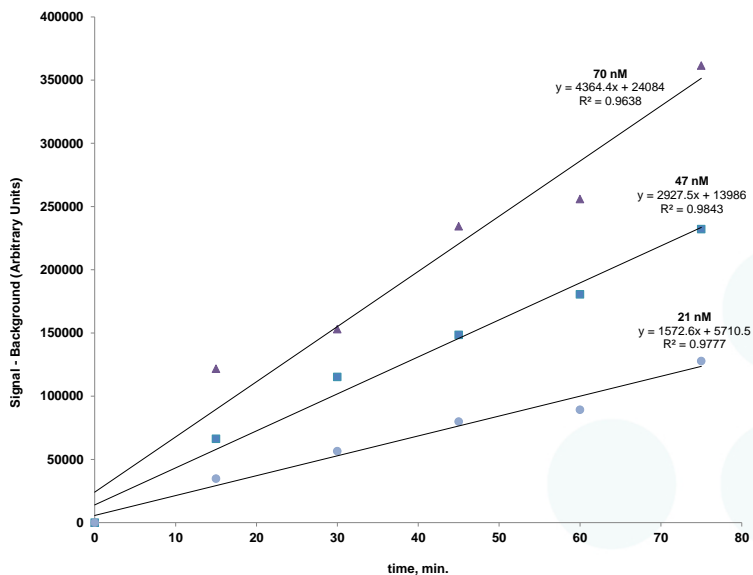
SUPPLIED AS: ___ μ g/ μ l in 50 mM HEPES/KOH, pH 7.6, 100 mM KCl, 3 mM DTT, 30% (w/v) glycerol as determined by OD₂₈₀

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) J. Tang *et al.* *J. Biol. Chem.* 1998 **273** 16935; 2) A. Frankel & S. Clarke *J. Biol. Chem.* 2000 **275** 32974; 3) F. Bachand & P.A. Silver *EMBO J.* 2004 **23** 2641; 4) R. Swiercz *et al.* *Biochem. J.* 2005 **386** 85; 5) A. Perreault *et al.* *J. Biol. Chem.* 2009 **284** 15026; 6) V. Singh *et al.* *Oncogene* 2004 **23** 7761; 7) W. Jiang I.F. Newsham *Mol. Cancer* 2006 **5** 4



Coomassie blue stained SDS-PAGE (4-12% acrylamide) 4 μ g of RBC PRMT3. MW markers (left) are, from top, 220, 160, 120, 100, 90, 80, 70, 60, 50, 40, 30, 25, 20, 15, 10 kDa.



Time courses of PRMT3 methylation of histone H3 in the HotSpotSM assay format. PRMT3, at the indicated concentrations, was assayed with 5 μ M histone H3 plus 1 μ M [³H]-SAM. Points represent the mean of two determinations and lines/equations derive from linear least-squares fits.

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

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