

## PRMT7 (His)

## (Protein Arginine Methyltransferase 7)

CATALOG NO.: HMT-21-382

LOT NO.:

**DESCRIPTION:** Full-length, human recombinant PRMT7 expressed in a baculovirus system (residues 2-692; Genbank Accession # NM\_019023.2; N-terminal His-tag; MW = 81.7 kDa). PRMT7, a type III arginine methyltransferase, catalyzes the transfer of a methyl group from S-adenosyl-L-methionine (SAM) to an  $\omega$ -nitrogen of the guanidino function of protein L-arginine residues forming  $\omega$ -N<sup>G</sup>-monomethylarginine, but is apparently not capable of forming asymmetric (type I activity) or symmetric (type II activity) dimethylarginine<sup>1,2</sup>. Recombinant PRMT7 can methylate various proteins *in vitro* including histones H2A, H3 and H4<sup>2</sup>. RBC's PRMT7 (His) is particularly active with fibrillarlin, GST-GAR (GST fusion with N-terminal region of fibrillarlin) and, in a scintillation proximity assay, a peptide derived from histone H2B (see figures below). PRMT7 interacts with PRMT5 *in vivo* and both enzymes are implicated and may cooperate in the methylation of histone H3 Arg-2 and the Sm ribonucleoproteins<sup>3,4</sup>. PRMT7 expression is elevated in highly metastatic breast cancer lines and in breast carcinomas generally<sup>5</sup>. PRMT7 overexpression promotes epithelial-mesenchymal transition, cell migration and invasiveness and a reduction of E-cadherin expression<sup>5</sup>. Conversely, knockdown of PRMT7 in MDA-MB-231 cells inhibited these processes, suggesting PRMT7 as a therapeutic target for metastatic breast cancer.

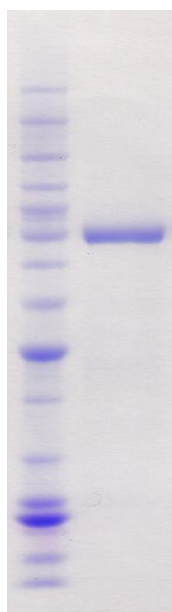
**PURITY:** >90% by SDS-PAGE.

**ASSAY CONDITIONS:** RBC's PRMT7 (His) displays histone methyltransferase activity with GST-GAR, Fibrillarlin (GST) or Fibrillarlin (His) (0.77 $\mu$ M) as TCA-precipitated counts in a scintillation/filter plate assay (Multiscreen FB, Topcount). Reaction conditions are: 50 mM Tris-HCl, pH 8.5, 50 mM NaCl, 5 mM MgCl<sub>2</sub>, 1 mM DTT, 1 mM PMSF, 30°C with substrates at concentrations indicated above. RBC's PRMT7 (His) displays also displays histone methyltransferase activity with H2B (21-41) in scintillation proximity assay. Reaction conditions are: 20mM Tris, pH 8.5, 5mM DTT, 0.01% Tween20, 25°C. (See figure below.)

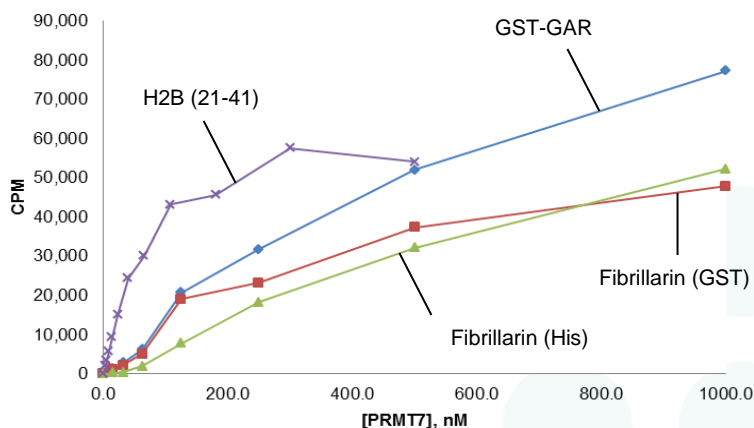
**SUPPLIED AS:** \_\_  $\mu$ g/ $\mu$ l total protein in 50 mM Tris, pH 7.5, 500 mM NaCl, 10% (w/v) glycerol, 1mM TCEP as determined by OD<sub>280</sub>

**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.B. Mirand *et al. J. Biol. Chem.* 2004 **279** 22902; 2) C.I. Zurita-Lopez *et al. J. Biol. Chem.* 2012 **287** 7859; 3) G.B. Gonsalvez *et al. J. Cell Biol.* 2007 **178** 733; 4) V. Migliori *et al. Nat. Struct. Mol. Biol.* 2012 **19** 136; 5) R. Yao *et al. Cancer Res.* 2014 **74** 5656;



**Coomassie blue stained SDS-PAGE (4 – 12% acrylamide) of 2  $\mu$ g (right) of RBC PRMT7.** 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 PRMT7 (His).** Figure shows methylation determined as TCA-precipitable counts in a scintillation/filter plate assay or SPA method. Filter plate assay reactions were 25  $\mu$ L, 60 min., 30°C, with 1  $\mu$ M [<sup>3</sup>H]-SAM and 0.77 $\mu$ M of either GST-GAR (RBC Cat. # HMT-11-137), Fibrillarlin (GST) (# HMT-11-184) or Fibrillarlin (His) (# HMT-11-183) as substrate. SPA reactions were 20 $\mu$ L, 30 min., 25°C with 1.1 $\mu$ M [<sup>3</sup>H]-SAM and 0.3 $\mu$ M biotinylated H2B (21-41) (Anaspec).

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

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