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KD-Validated Anti-PRMT1 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1876

Product Information

Application	WB
Primary Accession	Q99873
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	24GB5045
Calculated MW	42462
Gene Name	PRMT1
Aliases	PRMT1; Protein Arginine Methyltransferase 1; HRMT1L2; HCP1; ANM1; HMT1 (HnRNP Methyltransferase, S. Cerevisiae)-Like 2; Histone-Arginine N-MethyltransferasePRMT1; Protein Arginine N-Methyltransferase 1; Interferon Receptor 1-Bound Protein 4; Highly Conserved Protein 1; IR1B4; Heterogeneous Nuclear Ribonucleoprotein Methyltransferase 1-Like 2; HMT1 HnRNP Methyltransferase-Like 2 (S. Cerevisiae); EC 2.1.1.319; EC 2.1.1.77; EC 2.1.1; HMT2
Immunogen	A synthesized peptide derived from human PRMT1

Additional Information

Gene ID	3276
Other Names	Protein arginine N-methyltransferase 1, 2.1.1.319, Histone-arginine N-methyltransferase PRMT1, Interferon receptor 1-bound protein 4, PRMT1 (HGNC:5187)

Protein Information

Name	PRMT1 (HGNC:5187)
Function	Arginine methyltransferase that methylates (mono and asymmetric dimethylation) the guanidino nitrogens of arginyl residues present in proteins such as ESR1, histone H2, H3 and H4, FMR1, ILF3, HNRNPA1, HNRNPD, NFATC2IP, SUPT5H, TAF15, EWS, HABP4, SERBP1, RBM15, FOXO1, CHTOP, MAP3K5/ASK1, MICU1 and NPRL2 (PubMed:10749851, PubMed:15741314, PubMed:16879614, PubMed:18951090, PubMed:22095282, PubMed:25284789, PubMed:26575292, PubMed:26876602, PubMed:27642082, PubMed:30765518, PubMed:31257072, PubMed:38006878). Constitutes the main enzyme that mediates monomethylation and asymmetric dimethylation of histone H4 'Arg-3' (H4R3me1 and H4R3me2a, respectively), a specific tag for epigenetic transcriptional activation. May be involved in the regulation of TAF15 transcriptional activity, act as an activator of estrogen receptor (ER)-mediated

transactivation, play a key role in neurite outgrowth and act as a negative regulator of megakaryocytic differentiation, by modulating p38 MAPK pathway. Methylates RBM15, promoting ubiquitination and degradation of RBM15 (PubMed:26575292). Methylates MRE11 and TP53BP1, promoting the DNA damage response (PubMed:15741314, PubMed:16294045, PubMed:29651020). Methylates FOXO1 and retains it in the nucleus increasing its transcriptional activity (PubMed:18951090). Methylates CHTOP and this methylation is critical for its 5-hydroxymethylcytosine (5hmC)-binding activity (PubMed:25284789). Methylates MAP3K5/ASK1 at 'Arg-78' and 'Arg-80' which promotes association of MAP3K5 with thioredoxin and negatively regulates MAP3K5 association with TRAF2, inhibiting MAP3K5 stimulation and MAP3K5-induced activation of JNK (PubMed:22095282). Methylates H4R3 in genes involved in glioblastomagenesis in a CHTOP- and/or TET1- dependent manner (PubMed:25284789). Plays a role in regulating alternative splicing in the heart (By similarity). Methylates NPRL2 at 'Arg-78' leading to inhibition of its GTPase activator activity and then the GATOR1 complex and consequently inducing timely mTORC1 activation under methionine-sufficient conditions (PubMed:38006878). Methylates the C-terminus of DSP, promoting its phosphorylation by GSK3B and subsequent recruitment to desmosome cell-cell junctions (PubMed:25733715).

Cellular Location

Nucleus. Nucleus, nucleoplasm {ECO:0000250|UniProtKB:Q9JIF0}. Cytoplasm. Cytoplasm, cytosol {ECO:0000250|UniProtKB:Q9JIF0}. Lysosome membrane. Note=Mostly found in the cytoplasm Colocalizes with CHTOP within the nucleus. Low levels detected also in the chromatin fraction (By similarity). Upon methionine stimulation, localizes to the lysosome membrane in an NPRL2-dependent manner (PubMed:38006878). {ECO:0000250|UniProtKB:Q9JIF0, ECO:0000269|PubMed:38006878}

Tissue Location

Widely expressed (PubMed:11097842). Expressed strongly in colorectal cancer cells (at protein level) (PubMed:28040436). Expressed strongly in colorectal cancer tissues compared to wild-type colon samples (at protein level) (PubMed:28040436). Expressed strongly in colorectal cancer tissues compared to wild-type colon samples (PubMed:28040436)

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