abcam

ab7027

Anti-PRMT1 antibody [MAT-B12]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Constituents: 2% Sucrose, 1.21% Tris, 0.75% Glycine
Form	Lyophilized
Clonality	Monoclonal
Immunogen	Recombinant Protein within Human PRMT1. The exact immunogen used to generate this antibody is proprietary information. Database link Q99873
Clone number	MAT-B12
Purification technique	Affinity purification Protein A
Specificity	This Mab reacts with human arginine N-Methyl Transferase
Light chain type	kappa
Reconstitution	Reconstitute with 100µl Water.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	2 µg for 10^6 Cells

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information PRMT1

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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	PRMT1 also known as protein arginine methyltransferase 1 is an important enzyme for post-translational modification. With a molecular mass of approximately 41 kDa PRMT1 is involved in the methylation of arginine residues on target proteins. This enzyme is ubiquitously expressed across various tissues indicating its widespread importance in cellular functions. PRMT1 functions in both the nucleus and cytoplasm impacting diverse cellular processes through its enzymatic activity.
Biological function summary	PRMT1 participates in several essential cellular functions including signal transduction gene expression and RNA processing. It methylates histones and non-histone proteins influencing chromatin structure and function. PRMT1 does not normally function as part of a complex but it interacts individually with different substrates to exert its effects. PRMT1 activity is essential in regulating transcriptional activation and repression highlighting its significant role in cellular regulation.
Pathways	PRMT1 plays a central role in the regulation of the glucocorticoid receptor signaling and p53 pathways. In glucocorticoid receptor signaling PRMT1 modifies transcription factors affecting their ability to bind DNA and regulate gene expression. In the p53 pathway PRMT1 methylates p53 itself impacting cell cycle arrest and apoptotic functions. These pathways demonstrate PRMT1's interaction with other proteins like the p53 protein highlighting its integrative role in essential cellular processes.
Associated diseases and disorders	PRMT1 is implicated in cancer and cardiovascular diseases. Aberrant expression or activity of PRMT1 associates with tumor progression and poor prognosis in cancers making it a target for therapeutic intervention. Additionally PRMT1 contributes to the pathogenesis of cardiovascular diseases by influencing the expression of genes linked to cardiac hypertrophy. PRMT1 interacts with the p53 protein impacting cancer development while also being connected through its regulatory function on p53-associated genes in these diseases.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

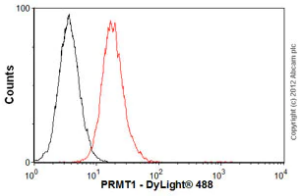
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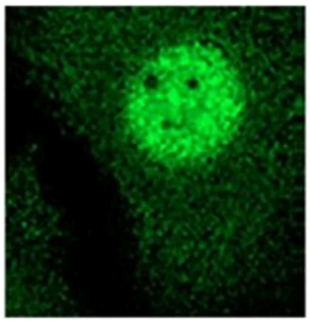
2 product images



Flow Cytometry - Anti-PRMT1 antibody [MAT-B12] (ab7027)

PRMT1 Flow Cytometry staining using mouse Anti-PRMT1 antibody

Overlay histogram showing HeLa cells stained with ab7027 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab7027, 2µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunocytochemistry/ Immunofluorescence - Anti-PRMT1 antibody [MAT-B12] (ab7027)

Immunofluorecent analysis of MCF-7 cells labelling PRMT1 with ab7027

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