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PRDM9 Antibody (C-term) Blocking Peptide
Synthetic peptide
Catalog # BP1209a

Specification

PRDM9 Antibody (C-term) Blocking Peptide - Product Information

Primary Accession	Q9NQV7
Other Accession	NP_064612

PRDM9 Antibody (C-term) Blocking Peptide - Additional Information

Gene ID 56979

Other Names
Histone-lysine N-methyltransferase PRDM9, PR domain zinc finger protein 9, PR domain-containing protein 9, PRDM9, PFM6

Target/Specificity
The synthetic peptide sequence used to generate the antibody AP1209a was selected from the C-term region of human PRDM9. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

PRDM9 Antibody (C-term) Blocking Peptide - Protein Information

Name PRDM9 (HGNC:13994)

Synonyms PFM6

Function
Histone methyltransferase that sequentially mono-, di-, and tri-methylates both 'Lys-4' (H3K4) and 'Lys-36' (H3K36) of histone H3 to produce respectively trimethylated 'Lys-4' (H3K4me3) and trimethylated 'Lys-36' (H3K36me3) histone H3 and plays a key role in meiotic prophase by determining hotspot localization thereby promoting meiotic recombination (PubMed:24634223, PubMed:24095733, PubMed:26833727, PubMed:27129774). Can also

methylate all four core histones with H3 being the best substrate and the most highly modified (PubMed:24095733, PubMed:24634223, PubMed:26833727). Is also able, on one hand, to mono and di-methylate H4K20 and on other hand to trimethylate H3K9 with the di-methylated H3K9 as the best substrate (By similarity). During meiotic prophase, binds specific DNA sequences through its zinc finger domains thereby determining hotspot localization where it promotes local H3K4me3 and H3K36me3 enrichment on the same nucleosomes through its histone methyltransferase activity (PubMed:26833727). Thereby promotes double-stranded breaks (DSB) formation, at this subset of PRDM9-binding sites, that initiates meiotic recombination for the proper meiotic progression (By similarity). During meiotic progression hotspot-bound PRDM9 interacts with several complexes; in early leptonema binds CDYL and EHMT2 followed by EWSR1 and CXXC1 by the end of leptonema. EWSR1 joins PRDM9 with the chromosomal axis through REC8 (By similarity). In this way, controls the DSB repair pathway, pairing of homologous chromosomes and sex body formation (By similarity). Moreover plays a central role in the transcriptional activation of genes during early meiotic prophase thanks to H3K4me3 and H3K36me3 enrichment that represents a specific tag for epigenetic transcriptional activation (By similarity). In addition performs automethylation (By similarity). Acetylation and phosphorylation of histone H3 attenuate or prevent histone H3 methylation (By similarity).

Cellular Location
Nucleus {ECO:0000250|UniProtKB:Q96EQ9}. Chromosome {ECO:0000250|UniProtKB:Q96EQ9}. Note=Localizes in nuclei of pre-leptotene, leptotene, and early to mid-zygotene spermatocytes {ECO:0000250|UniProtKB:Q96EQ9}

PRDM9 Antibody (C-term) Blocking Peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

PRDM9 Antibody (C-term) Blocking Peptide - Images

PRDM9 Antibody (C-term) Blocking Peptide - Background

Similar to acetylation and phosphorylation, histone methylation at the N-terminal tail has emerged as an important role in regulating chromatin dynamics and gene activity. Histone methylation occurs on arginine and lysine residues and is catalyzed by two families of proteins, the protein arginine methyltransferase family and the SET-domain-containing methyltransferase family. Five members have been identified in the arginine methyltransferase family. About 27 are grouped into the SET-domain family, and another 17 make up the PR domain family that is related to the SET domain family. The retinoblastoma protein-interacting zinc finger geneRIZ1 is a tumor suppressor gene and a FOUNDING member of the PR domain family. RIZ1 inactivation is commonly found in many types of human cancers and occurs through loss of mRNA expression, frame shift mutation, chromosomal deletion, and missense mutation. RIZ1 is also a tumor susceptibility gene in mice. The loss of RIZ1 mRNA in human cancers was shown to associate with DNA methylation of its promoter CpG island. Methylation of the RIZ1 promoter strongly correlated with lost or decreased RIZ1 mRNA expression in breast, liver, colon, and lung cancer cell lines as well as in liver cancer tissues.

PRDM9 Antibody (C-term) Blocking Peptide - References

Xiao, B., et al., Curr. Opin. Struct. Biol. 13(6):699-705 (2003).Jiang, G.L., et al., Histol. Histopathol. 15(1):109-117 (2000).