PRODUCT INFORMATION

5-Methylcytosine DNA Matched Antibody Pair (Clones RM231/RM476)

Item No. 42873

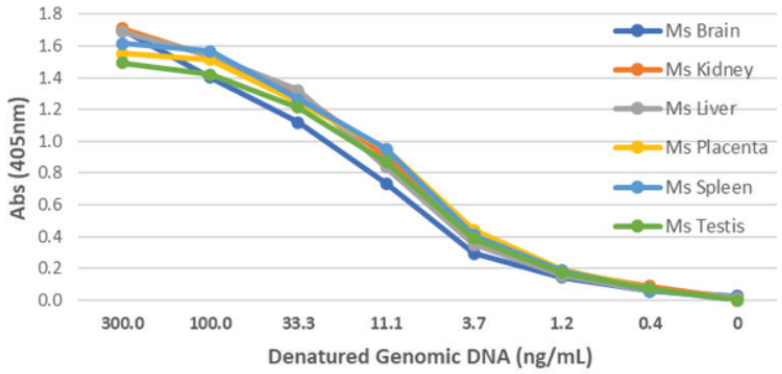
Overview and Properties

Antibody	Item Name	Storage Buffer	Clone	Applications*
Capture	5-Methylcytosine Rabbit Monoclonal Antibody (Clone RM231) (Item No. 20722)	50 µg at 1.0 mg/ml in PBS with 50% glycerol and 0.09% sodium azide	RM231	Sandwich ELISAs: 50-200 ng/well
Detection	Adenine and Guanine Rabbit Monoclonal Antibody - Biotinylated (Clone RM476)	25 µg at 1.0 mg/ml in PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide	RM476	Sandwich ELISAs: 0.1-0.5 µg/ml

**Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.*

Contents: Contains protein A-affinity purified monoclonal antibodies.
Synonyms: 5-mC, m^5C, NSC 137776
Immunogen: BSA-conjugated 5-mC
Cross Reactivity: (+) 5-mC; (-) Non-methylated cytosine, 5-hmC, 5-caC, 5-fC
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥1 year
Host: Rabbit

Image



Detection of 5-methylcytosine in genomic DNA from different mouse tissues. Results are shown for a sandwich ELISA using 5-Methylcytosine Rabbit Monoclonal Antibody (RM231) (Item No. 20722) as the capture antibody (50 ng/well at 1 µg/ml) and Adenine-Guanine Rabbit Monoclonal Antibody - Biotinylated (Clone RM476) as the detection antibody (0.2 µg/ml), followed by AP-conjugated streptavidin.

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Description

5-Methylcytosine (5-mC) is an epigenetic modification formed from methylation of cytosine by DNA methyltransferases (DNMTs).[1] 5-mC is an abundant DNA modification that is enriched at CpG dinucleotides. It can be successively oxidized by ten-eleven translocation (TET) dioxygenases to form 5-hydroxymethylcytosine (5-hmC), 5-formylcytosine (5-fC), and 5-carboxylcytosine (5-caC). 5-mC is associated with reduced gene transcription of DNA but is also found in the tRNA, mRNA, and rRNA from bacteria, archaea, and eukaryotes.[1,2] Levels of 5-mC on CpG islands in the genes encoding p16, thrombospondin-1 (TSP-1), and methylated in tumor 1 (MINT1) are increased in tumors compared with adjacent normal tissue in patients with renal cell carcinoma.[3] Cayman's 5-Methylcytosine DNA Matched Antibody Pair (Clones RM231/RM476) contains 5-Methylcytosine Rabbit Monoclonal Antibody (Clone RM231) (Item No. 20722) as a capture antibody and Adenine-Guanine Rabbit Monoclonal Antibody - Biotinylated (Clone RM476) as a detection antibody. This antibody pair can be used for sandwich ELISAs or other sandwich assays for the specific detection of 5-mC in ssDNA.

References

1. Breiling, A. and Lyko, F. Epigenetic regulatory functions of DNA modifications: 5-Methylcytosine and beyond. *Epigenetics Chromatin* **8**, 24 (2015).
2. Edelheit, S., Schwartz, S., Mumbach, M.R., *et al.* Transcriptome-wide mapping of 5-methylcytidine RNA modifications in bacteria, archaea, and yeast reveals m^5C within archaeal mRNAs. *PLoS Genetics* **9(6)**, e1003602 (2013).
3. Arai, E., Kanai, Y., Ushijima, S., *et al.* Regional DNA hypermethylation and DNA methyltransferase (DNMT) 1 protein overexpression in both renal tumors and corresponding nontumorous renal tissues. *Int. J. Cancer* **119(2)**, 288-296 (2006).

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