

anti- 5-Methylcytosine antibody, ascite fluid (clone 5MC-CD)

51-001 100 μ l

DNA methylation is a type of chemical modification of DNA that can be inherited and subsequently removed without changing the original DNA sequence. As such, it is part of the epigenetic code and is also the most well characterized epigenetic mechanism. DNA methylation involves the addition of a methyl group to DNA — for example, to the number 5 carbon of the cytosine pyrimidine ring — in this case with the specific effect of reducing gene expression. In adult somatic tissues, DNA methylation typically occurs in a <u>CpG</u> dinucleotide context; non-CpG methylation is prevalent in embryonic <u>stem</u> cells. In plants, cytosines are methylated both symmetrically (CpG or CpNpG) and asymmetrically (CpNpNp), where N can be any nucleotide but guanine.

Applications

1) Immunocytochemistry (Figure below and Ref.1 & 2) (~200 fold dilution)

2) Immuno-blotting detection of DNA with 5-methylocytosine on nitrocellulose (Ref. 3 & 4) (~3000 fold dilution).

Immunogen: 5-Methylcytosine conjugated to bovine serum albumin (Ref 3)

Reactivity: DNA with 5-Methylcytosine

Isotype: IgM

Form: Mouse ascite fluid added with 0.05 % sodium azide

Storage: 4°C (long period, -80°C)

References: This product has been used in references 1-3 (& many more publications).

1. Sharif J. et al. The SRA protein Np95 mediates epigenetic inheritance by recruiting Dmnt1 to methylated DNA. Nature 450: 908-912 (2007)

- 2. Nishiyama R. et al. A chloroplast-resident DNA methyltransferase is responsible for hypermethylation of chloroplast genes in Chlamydomonas maternal gametes. PNAS 99: 5925-30 (2002).
- 3. Sano H, Sager R. Detection of heavy methylation in human repetitive DNA subsets by a monoclonal antibody against 5-methylcytosine Biochim Biophys Acta. 951:157-65 (1988).

4. Sano H. Royer HD. & Sager R. Identification of 5-methycytosine in DNA fragment immobilized on nitrocellulose paper. PNAS 77:3581-85 (1980)



Fig. Methylation of chloroplast DNA visualized by immunochemistry. Samples are Chlamidomonas me-1 cells. Left: DAPI-stained cells. Middle: Cells stained with anti-5MeC antibody and FITC-conjugated 2nd antibody. Right: Merged image. Chloroplast DNA is exclusively methylated in gamete cells

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