

## Anti-5-Methylcytosine antibody, mouse monoclonal, IgM (5MC-CD)

51-003      100 µg

**Shipping and Storage:** Shipped at 4°C or -20°C. Store at -20°C.

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

**Form:** 1.0 mg/ml in PBS- with 50% glycerol, filter-sterilized

**Isotype:** mouse IgM

**Reactivity:** DNA with 5-Methylcytosine (methylated DNA), any species

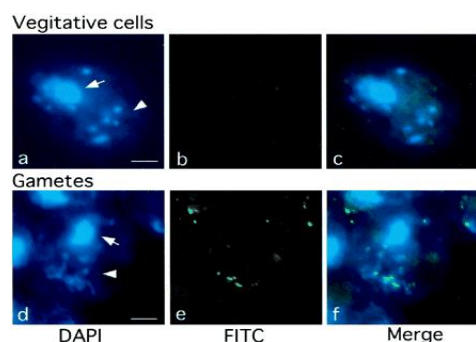
### Applications

- 1) Immunocytochemistry (Figure below and Ref.1 & 2) (~50-100 fold dilution)
- 2) Immuno-blotting detection of DNA with 5-methylcytosine on nitrocellulose (Ref. 3 & 4) (~1000 fold dilution)

**Background:** DNA methylation is a type of chemical modification of DNA that can be inherited and subsequently removed without changing the original DNA sequence. Therefore it is part of the epigenetic code and is also the most well characterized epigenetic mechanism. DNA methylation results in addition of a methyl group to DNA — for example, to the number 5 carbon of the cytosine pyrimidine ring — which involves reduction in gene expression. In adult somatic tissues, DNA methylation typically occurs in a CpG dinucleotide context; non-CpG methylation is prevalent in embryonic stem cells. This hybridoma has been constructed by Prof. H. Sano.

**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 Dmmt1 to methylated DNA" *Nature* **450**: 908-912 (2007) PMID: [17994007](#)
2. Nishiyama R *et al* "A chloroplast-resident DNA methyltransferase is responsible for hypermethylation of chloroplast genes in Chlamydomonas maternal gametes" *PNAS* **99**: 5925-5930 (2002) PMID: [11983892](#)
3. Sano H *et al* "Detection of heavy methylation in human repetitive DNA subsets by a monoclonal antibody against 5-methylcytosine" *Biochim Biophys Acta* **951**:157-65 (1988) PMID: [2847796](#)
4. Sano H *et al* "Identification of 5-methylcytosine in DNA fragment immobilized on nitrocellulose paper" *PNAS* **77**:3581-3585 (1980) PMID: [6251470](#)



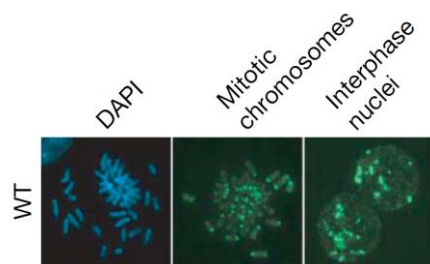
**Fig.1 Methylation of chloroplast DNA visualized by immunochemistry.** Samples are Chlamydomonas me-1 cells.

Left: DAPI-stained cells

Middle: Cells stained with anti-5MeC antibody and FITC-conjugated 2<sup>nd</sup> antibody

Right: Merged image

to be continued...



**Fig.2 Detection of DNA methylation in mouse embryonic stem cells by immunofluorescence staining with the anti-5MeC antibody**

Intense 5-methylcytosine staining at pericentromeric regions was seen in the mitotic chromosome and interphase nuclei of ESCs (For details, see Reference 1).