

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

Product code	51-005
Size	50 µg
Storage	-20°C
Concentration	1.0 mg/ml
Buffer	PBS ⁻ with 50% glycerol
Purity	Purified IgM fraction with protein A from hybridoma cell culture medium.
Immunogen	5-Methylcytosine conjugated to bovine serum albumin (Ref 3)
Isotype	Mouse IgM
Reactivity	DNA with 5-Methylcytosine (methylated DNA), any species
Validation	N/A
Application	<ol style="list-style-type: none"> 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	<p>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.</p>
Data Link	
<p>Please note: All products are FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES. NOT FOR MILITARY USE.</p>	

Data Images: 51-005 Anti-5-Methylcytosine antibody, mouse monoclonal, IgM (5MC-CD), FITC-conjugated

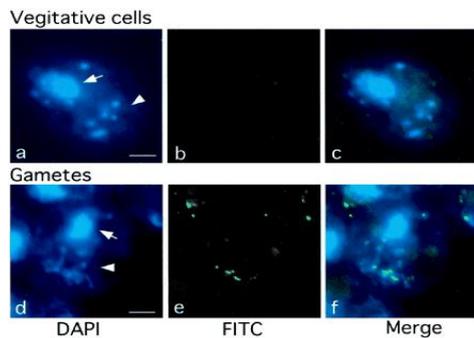


Fig.1 Methylation of chloroplast DNA visualized by immunochemistry. Samples are *Chlamydomonas me-1* cells.

Left: DAPI-stained cells

Middle: Cells stained with anti-5MeC antibody and FITC-conjugated 2nd antibody

Right: Merged image

Chloroplast DNA is exclusively methylated in gamete cells.

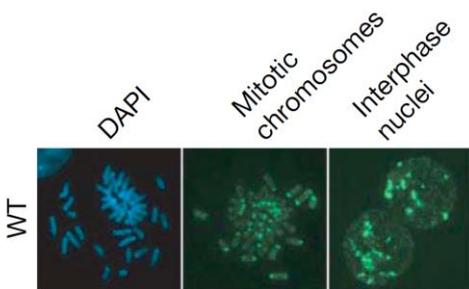


Fig.2 Detection of DNA methylation in mouse embryonic stem cells by immunofluorescence staining with the anti-5MeC antibody

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

References: This product has been used in references 1-4 (& 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) PMID: [17994007](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/2847796/)
4. Sano H *et al* "Identification of 5-methylcytosine in DNA fragment immobilized on nitrocellulose paper" *PNAS* **77**:3581-3585 (1980) PMID: [6251470](https://pubmed.ncbi.nlm.nih.gov/6251470/)