

Datasheet: MCA2201

BATCH NUMBER 150754

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|----------------------|-----------------------------|
| Description: | MOUSE ANTI 5-METHYLCYTIDINE |
| Specificity: | 5-METHYLCYTIDINE |
| Format: | Purified |
| Product Type: | Monoclonal Antibody |
| Clone: | 33D3 |
| Isotype: | IgG1 |
| Quantity: | 0.1 mg |

Product Details

Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit www.bio-rad-antibodies.com/protocols.

| | Yes | No | Not Determined | Suggested Dilution |
|------------------------------------|-----|----|----------------|--------------------|
| Flow Cytometry (1) | ▪ | | | |
| Immunohistology - Frozen | ▪ | | | |
| Immunohistology - Paraffin (2) | ▪ | | | |
| ELISA | ▪ | | | |
| Immunoprecipitation | | | ▪ | |
| Western Blotting | | | ▪ | |
| Immunofluorescence | ▪ | | | |
| Immunoblotting | ▪ | | | |
| Methylated DNA Immunoprecipitation | ▪ | | | |

Where this antibody has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the antibody for use in their own system using appropriate negative/positive controls.

(1)Membrane permeabilization may be required prior to staining. Cell pretreatment before staining is described in [Giraldo et al \(2007\)](#)..

(2)This product requires antigen retrieval using heat treatment prior to staining of paraffin sections.Sodium citrate buffer pH 6.0 is recommended for this purpose.

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| Target Species | Broad |
| Species Cross | Reacts with: Human, Rat, Mouse, Bovine |

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|---------------------------------------|---|
| Reactivity | N.B. Antibody reactivity and working conditions may vary between species. Cross reactivity is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. |
| Product Form | Purified |
| Preparation | Purified IgG prepared by affinity chromatography on Protein A from tissue culture supernatant |
| Buffer Solution | Phosphate buffered saline |
| Preservative Stabilisers | 0.01% Thiomersal |
| Approx. Protein Concentrations | IgG concentration 1.0 mg/ml |
| RRID | AB_324056 |
| Fusion Partners | Spleen cells from immunised Balb/c mice were fused with cells of the Sp2/0-Ag 14 myeloma cell line. |
| Specificity | <p>Mouse anti 5-methylcytidine antibody, clone 33D3 recognizes 5-methylcytidine, a modified base found in the DNA of plants and vertebrates.</p> <p>Methylation of DNA is an epigenetic process that stably alters the expression of genes in cells as they divide and differentiate into specific tissues. The resulting change is normally permanent and unidirectional, preventing a cell from reverting to a stem cell or converting into another type of tissue. In cancer biology, DNA hypermethylation is associated with gene silencing while hypomethylation is reported to be associated with disease progression (Sincic & Herceg, 2011).</p> <p>Mouse anti 5-MeCyd antibody, clone 33D3 is specific to the methylated base and has minimal reactivity to non-methylated cytidine or cytosine (Reynaud et al.1992)</p> <p>Mouse anti 5-MeCyd antibody, clone 33D3 has been reported for use in methylated DNA immunoprecipitation (MeDIP) (Pontes et al. 2007).</p> |
| Flow Cytometry | Use 10ul of the suggested working dilution to label 1x10 ⁶ cells in 100ul. |
| References | <ol style="list-style-type: none"> 1. Reynaud, C. <i>et al.</i> (1992) Monitoring of urinary excretion of modified nucleosides in cancer patients using a set of six monoclonal antibodies. Cancer Lett. 61 (3): 255-62. 2. Habib, M. <i>et al.</i> (1999) DNA global hypomethylation in EBV-transformed interphase nuclei. Exp Cell Res. 249 (1): 46-53. 3. Hernandez-Blazquez, F.J. <i>et al.</i> (2000) Evaluation of global DNA hypomethylation in human colon cancer tissues by immunohistochemistry and image analysis. Gut. 47 (5): 689-93. 4. Giraldo, A.M. <i>et al.</i> (2007) DNA methylation and histone acetylation patterns in cultured |

bovine fibroblasts for nuclear transfer. [Mol Reprod Dev. 74 \(12\): 1514-24.](#)

5. Shen, R. *et al.* (2009) Reversibility of aberrant global DNA and estrogen receptor-alpha gene methylation distinguishes colorectal precancer from cancer. [Int J Clin Exp Pathol. 2 \(1\): 21-33.](#)

6. Pontes, O. *et al.* (2007) Postembryonic establishment of megabase-scale gene silencing in nucleolar dominance. [PLoS One. 2 \(11\): e1157.](#)

7. Yang, F. *et al.* (2010) Trichostatin A and 5-azacytidine both cause an increase in global histone H4 acetylation and a decrease in global DNA and H3K9 methylation during mitosis in maize. [BMC Plant Biol. 10: 178.](#)

8. Suter, J.D. *et al.* (2010) Label-free DNA methylation analysis using opto-fluidic ring resonators. [Biosens Bioelectron. 26: 1016-20.](#)

9. Li, Y. and O'Neill, C. (2012) Persistence of cytosine methylation of DNA following fertilisation in the mouse. [PLoS One. 7:e30687.](#)

10. Çelik, S. *et al.* (2014) The Exit of Mouse Embryonic Fibroblasts from the Cell-Cycle Changes the Nature of Solvent Exposure of the 5'-Methylcytosine Epitope within Chromatin. [PLoS One. 9: e92523.](#)

11. Li, Y. & O'Neill, C. (2013) 5'-Methylcytosine and 5'-hydroxymethylcytosine each provide epigenetic information to the mouse zygote. [PLoS One. 8 \(5\): e63689.](#)

12. Leter, G. *et al.* (2014) Exposure to perfluoroalkyl substances and sperm DNA global methylation in Arctic and European populations. [Environ Mol Mutagen. 55 \(7\): 591-600.](#)

13. Desjobert, C. *et al.* (2015) Combined analysis of DNA methylation and cell cycle in cancer cells. [Epigenetics. 10 \(1\): 82-91.](#)

14. Çelik-Uzuner S *et al.* (2016) Measurement of global DNA methylation levels by flow cytometry in mouse fibroblasts. [In Vitro Cell Dev Biol Anim. Aug 9. \[Epub ahead of print\]](#)

15. Li, Y. *et al.* (2016) Mapping global changes in nuclear cytosine base modifications in the early mouse embryo. [Reproduction. 151 \(2\): 83-95.](#)

16. Çelik-Uzuner, S. & O'Neill, C. (2021) Cellular Autofluorescence in Mouse Embryonic Fibroblasts Interferes with Antigen Detection Using Flow Cytometry. [J Fluoresc. Mar 27 \[Epub ahead of print\].](#)

Further Reading 1. Sinčić, N & Herceg, Z. (2011) DNA methylation and cancer: ghosts and angels above the genes. [Curr Opin Oncol. 23: 69-76.](#)

Storage Store at +4°C or at -20°C if preferred.

This product should be stored undiluted.

Storage in frost-free freezers is not recommended. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use.

Guarantee 12 months from date of despatch

Health And Safety Information Material Safety Datasheet documentation #10094 available at: <https://www.bio-rad-antibodies.com/SDS/MCA2201>
10094

Regulatory For research purposes only

Related Products

Recommended Secondary Antibodies

Rabbit Anti Mouse IgG (STAR12...) [RPE](#)

Rabbit Anti Mouse IgG (STAR9...) [FITC](#)

Rabbit Anti Mouse IgG (STAR13...) [HRP](#)

North & South America Tel: +1 800 265 7376
Fax: +1 919 878 3751
Email: antibody_sales_us@bio-rad.com

Worldwide Tel: +44 (0)1865 852 700
Fax: +44 (0)1865 852 739
Email: antibody_sales_uk@bio-rad.com

Europe Tel: +49 (0) 89 8090 95 21
Fax: +49 (0) 89 8090 95 50
Email: antibody_sales_de@bio-rad.com

To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets
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