Datasheet: MCA2201

BATCH NUMBER 167726

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 product 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 product 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.**

Target Species

Broad

Species Cross Reactivity

Reacts with: Human, Rat, Mouse, Bovine

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	0.09% Sodium Azide (NaN_3)
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	**Mouse anti 5-methylcytidine antibody, clone 33D3** recognizes 5-methylcytidine, a modified base found in the DNA of plants and vertebrates. 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). 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) Mouse anti 5-MeCyd antibody, clone 33D3 has been reported for use in methylated DNA immunoprecipitation (MeDIP) (Pontes *et al.* 2007).
Flow Cytometry	Use 10µl of the suggested working dilution to label $1x10^6$ cells in 100µl
References	1. Reynaud, C. *et al.* (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. *et al.* (1999) DNA global hypomethylation in EBV-transformed interphase nuclei. Exp Cell Res. 249 (1): 46-53. 3. Hernandez-Blazquez, F.J. *et al.* (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. *et al.* (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].
17. Daniel, S. *et al.* (2018) T cell epigenetic remodeling and accelerated epigenetic aging are linked to long-term immune alterations in childhood cancer survivors. Clin Epigenetics. 10 (1): 138.
18. Baixauli, F. *et al.* (2022) An LKB1-mitochondria axis controls T(H)17 effector function. Nature. 610 (7932): 555-561.

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

This product is shipped at ambient temperature. It is recommended to aliquot and store at -20°C on receipt. When thawed, aliquot the sample as needed. Keep aliquots at 2-8°C for short term use (up to 4 weeks) and store the remaining aliquots at -20°C.

Avoid repeated freezing and thawing as this may denature the antibody. Storage in frost-free freezers is not recommended.

Guarantee

12 months from date of despatch

Health And Safety Information

Material Safety Datasheet documentation #10040 available at:
https://www.bio-rad-antibodies.com/SDS/MCA2201

	10040
Regulatory	For research purposes only

Related Products

Recommended Secondary Antibodies

Rabbit Anti Mouse IgG (STAR12...) RPE
Rabbit Anti Mouse IgG (STAR13...) HRP
Rabbit Anti Mouse IgG (STAR9...) FITC

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

'M417545:230406'

Printed on 29 Feb 2024