SANTA CRUZ BIOTECHNOLOGY, INC.

5-Methylcytidine (33D3): sc-56615

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

5-Methylcytidine (5mC) is a modified base that is a minor constituent of RNA, present in all organisms, and of DNA, where it is present in plants and vertebrates. Approximately one to 2 residues of 5-Methylcytidine occur in every 1,000 RNA residues. DNA methylation is a DNA modification process involved in the establishment of genomic imprinting and in the control of gene expression and differentiation. Research indicates that in tumors, DNA is frequently globally hypomethylated when compared with the DNA from normal tissue. 5-Methylcytidine may also play an important role in viral degradation at the level of virus maturation or packaging.

REFERENCES

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2. Gross, H.J. 1976. Natural modified nucleosides and chemical carcinogenesis: L-ethionine-dependent inhibition of N6-dimethyladenosine and 5-Methylcytidine synthesis on the tRNA level *in vivo*. Ann. N.Y. Acad. Sci. 255: 564-566.
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5. Chen, Y., et al. 1993. 5-Methylcytidine is required for cooperative binding of Mg^{2+} and a conformational transition at the anticodon stem-loop of yeast phenylalanine tRNA. Biochemistry 32: 10249-10253.
6. Podestà, A., et al. 1993. Molecular geometry of antigen binding by a monoclonal antibody against 5-Methylcytidine. Int. J. Biochem. 25: 929-933.
7. Sharonov, A., et al. 2003. Photophysical properties of 5-Methylcytidine. Photochem. Photobiol. Sci. 2: 362-364.
8. Ali, M.M., et al. 2004. Sequence- and base-specific delivery of nitric oxide to cytidine and 5-Methylcytidine leading to efficient deamination. J. Am. Chem. Soc. 126: 8864-8865.

SOURCE

5-Methylcytidine (33D3) is a mouse monoclonal antibody raised against a small molecule corresponding to 5-Methylcytidine found in DNA of plants and vertebrates.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and 0.001% thimerosal.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

5-Methylcytidine (33D3) is recommended for detection of 5-Methylcytidine of mouse, rat, human and *Arabadopsis thaliana* origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

SELECT PRODUCT CITATIONS

1. Doi, T., et al. 2011. Epigenetic effect of cadmium on global *de novo* DNA hypomethylation in the cadmium-induced ventral body wall defect (VBWD) in the chick model. Toxicol. Sci. 120: 475-480.
2. Zacchini, F., et al. 2011. Efficient production and cellular characterization of sheep androgenetic embryos. Cell. Reprogram. 13: 495-502.
3. Augusto, T.M., et al. 2011. Neonatal exposure to high doses of 17β-estradiol results in inhibition of heparanase-1 expression in the adult prostate. Histochem. Cell Biol. 136: 609-615.
4. Ma, Y., et al. 2012. Embryonic developmental toxicity of selenite in zebrafish *(Danio rerio)* and prevention with folic acid. Food Chem. Toxicol. 50: 2854-2863.
5. Lokich, E., et al. 2014. HE4 expression is associated with hormonal elements and mediated by importin-dependent nuclear translocation. Sci. Rep. 4: 5500.
6. Fogarty, N.M., et al. 2015. Different epigenetic states define syncytiotrophoblast and cytotrophoblast nuclei in the trophoblast of the human placenta. Placenta 36: 796-802.
7. Almeida, L.O., et al. 2017. SET oncoprotein accumulation regulates transcription through DNA demethylation and histone hypoacetylation. Oncotarget 8: 26802-26818.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.