PRODUCT INFORMATION

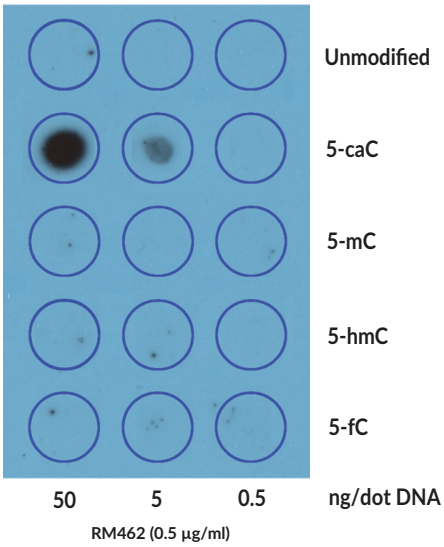
5-Carboxylcytosine Rabbit Monoclonal Antibody (Clone RM462)

Item No. 42806

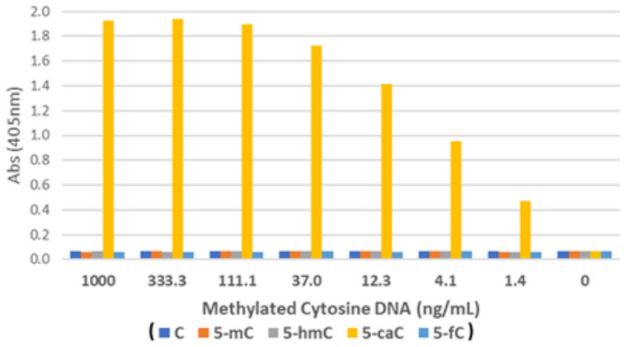
Overview and Properties

Contents:	This vial contains 50 µg of protein A-affinity purified monoclonal antibody.
Synonym:	5caC, 5-caC
Immunogen:	KLH-conjugated 5-Carboxylcytosine
Cross Reactivity:	(+) 5-Carboxylcytosine; (-) Cytosine, 5-formylcytosine, 5-hydroxymethylcytosine, 5-methylcytosine
Species Reactivity:	Species Independent
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Concentration:	1 mg/ml
Clone:	RM462
Host:	Rabbit
Isotype:	IgG
Applications:	Dot blot and ELISA; the recommended starting concentration is 0.1-1 µg/ml for dot blot and 0.2–2 µg/ml for ELISA. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Dot blot of DNA using 5-Carboxylcytosine Rabbit Monoclonal Antibody (Clone RM462). The membrane was pre-spotted with 50, 5, and 0.5 ng/dot of linear dsDNA (426 bp) containing either normal cytosines (unmodified), 5-carboxylcytosines (5-caC), 5-methylcytosines (5-mC), 5-hydroxymethylcytosines (5-hmC), or 5-formylcytosines (5-fC).



ELISA of DNA using 5-Carboxylcytosine Rabbit Monoclonal Antibody (Clone RM462) (1 µg/mL). The plate was coated with different concentrations of linear ssDNA (426 bp) containing either normal cytosines (unmodified), 5-methylcytosines (5-mC), 5-hydroxymethylcytosines (5-hmC), 5-carboxylcytosines (5-caC), or 5-formylcytosines (5-fC).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

5-Carboxylcytosine is an oxidized form of cytosine formed by methylation and oxidation of cytosine.[1,2] It is formed by sequential oxidation of 5-methyl-, 5-hydroxymethyl-, and 5-formylcytosine by ten-eleven translocation (TET) enzymes.[2] *In vitro*, 5-carboxylcytosine in DNA reduces the rate of transcription by RNA polymerase II.[3] Increased levels of 5-carboxylcytosine are found in primary mouse embryonic stem cells (mESCs) and the brain of post-implantation mouse embryos but absent in adult mouse brain.[4] Cayman's 5-Carboxylcytosine Rabbit Monoclonal Antibody (Clone RM462) can be used for dot blot and ELISA applications.

References

1. Berg, J.M., Tymoczko, J.L., and Stryer, L. Nucleotide Biosynthesis. *Biochemistry.* 5th edition, *W.H. Freeman* (2002).
2. Ito, S., Shen, L., Dai, Q., *et al.* Tet proteins can convert 5-methylcytosine to 5-formylcytosine and 5-carboxylcytosine. *Science* **333(6047)**, 1300-1303 (2011).
3. Kellinger, M.W., Song, C.-X., Chong, J., *et al.* 5-formylcytosine and 5-carboxylcytosine reduce the rate and substrate specificity of RNA polymerase II transcription. *Nat. Struct. Mol. Biol.*. **19(8)**, 831-833 (2012).
4. Wheldon, L.M., Abakir, A., Ferjentsik, Z., *et al.* Transient accumulation of 5-carboxylcytosine indicates involvement of active demethylation in lineage specification of neural stem cells. *Cell Rep.* **7(5)**, 1353-1361 (2014).

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