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(54) Title: DETECTING METHYLCYTOSINE AND ITS DERIVATIVES USING S-ADENOSYL-L-METHIONINE ANALOGS (XSAMS)

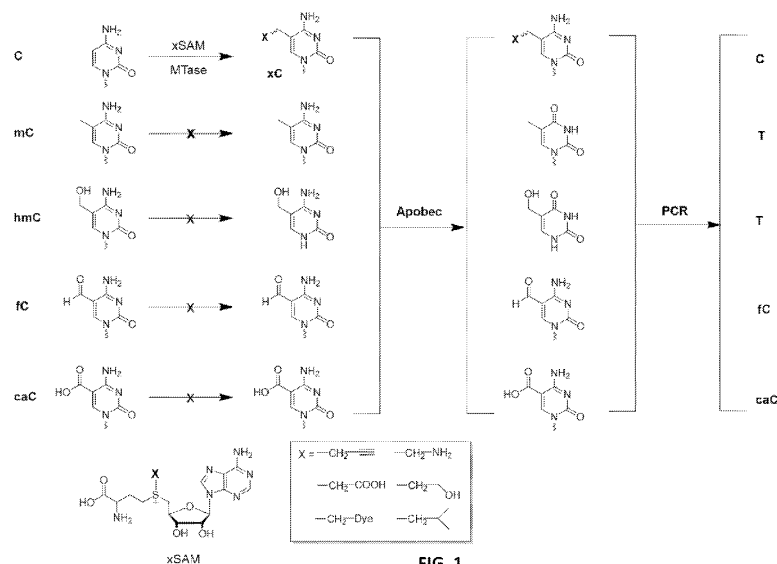


FIG. 1

(57) Abstract: Examples provided herein are related to detecting methylcytosine and its derivatives using S-adenosyl-L-methionine analogs (xSAMs). Compositions and methods for performing such detection are disclosed. A target polynucleotide may include cytosine (C) and methylcytosine (mC). The method may include (a) protecting the C in the target polynucleotide from deamination; and (b) after step (a), deaminating the mC in the target polynucleotide to form thymine (T). Protecting the C from deamination may include adding a protective group to the 5 position of the C, e.g., using a methyltransferase enzyme that adds the first protective group from an xSAM.

[Continued on next page]

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