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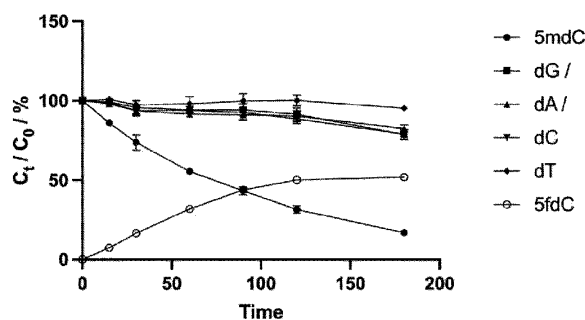


Figure 1

(57) Abstract: The invention provides a method for identifying a modified cytosine residue, which may be 5-methylcytosine or 5-hydroxymethylcytosine, in a nucleotide sequence. The method comprises oxidising the modified cytosine residue through a non-enzymatic, one-electron process to form 5-formylcytosine. The presence of 5-formylcytosine can be established by labelling and identifying this residue. The invention also provides a method of modifying a polynucleotide containing a 5-methylcytosine and/or a 5-hydroxymethylcytosine residue, a method of oxidising 5-methylcytosine, 5-hydroxymethylcytosine, a 5-methylcytosine residue, or a 5-hydroxymethylcytosine residue, use of a non-enzymatic radical initiator to oxidise a 5-methylcytosine or 5-hydroxymethylcytosine residue, and a kit for use in the methods.

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