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(54) Title: DETECTING METHYLATION CHANGES IN DNA SAMPLES USING RESTRICTION ENZYMES AND HIGH THROUGHPUT SEQUENCING

(57) Abstract: Methods and systems for genetic and epigenetic profiling of DNA samples and detecting genetic and epigenetic changes in DNA samples are provided, which involve digestion of DNA with methylation-sensitive restriction enzymes, followed by high-throughput sequencing and analysis of sequence reads. Advantageously, the methods and systems of the present invention are sensitive yet accurate, and enable working with very low amounts of DNA and receive vast amount of information, including methylation data, mutation data and more, based on sequencing data from a single run.

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