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NOVEL QUANTITATIVE, ARRAY-BASED METHYLATION ANALYSIS

DIAGNOSTICS

Method for methylation detection that uses methyl binding domain proteins to provide an accurate and quantitative assessment of methylated DNA.

TECHNOLOGY TYPE

Biomarkers
Assay
DNA Methylation

STAGE OF DEVELOPMENT

- Proof of concept established for a direct microarray-based assay using surface-bound methylated probes.

- Ongoing work to optimize probe design and surface density.

IP PROTECTION

Nationalized PCT Issued in the United States

Methods and Compositions Related to Quantitative, Array Based Methylation Analysis
US9518288

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TECHNOLOGY SUMMARY

DNA methylation often reflects epigenetic changes that affect oncogenesis and normal cell functions. Current methods for assessing DNA methylation, however, are labor intensive, technically complicated, and often ambiguous.

A novel microarray-based technique for the quantification of DNA methylation has been developed. The microarray uses methyl binding domain proteins to recognize CpGs with high specificity both *in vivo* and *in vitro*. The two-step process hybridizes the DNA to an array of oligonucleotide probes and then exposes the DNA to fluorescently labeled methyl binding proteins. Analysis of the binding kinetics provides information of the methylation level at each addressable spot with increased specificity. This technique dramatically simplifies quantification of methylated DNA, increases accuracy, and avoids limitations associated with prior methods.

FEATURES AND BENEFITS

- Simplifies quantification of methylated DNA.
- Enables simultaneous analysis of multiple target sequences.
- Enhances affinity for symmetric methylation.
- Improves specificity, even for heterogeneous DNA.

RECENT PUBLICATIONS

Yu, Y., Blair, S., Gillespie, D., Jensen, R., Myszkowski, D., Badran, A.H., Ghosh, I., Chagovetz, A. (2010). Direct DNA methylation profiling using methyl binding domain proteins. *Analytical Chemistry*. 82(12): 5012-5019. doi: [10.1021/ac1010316](https://doi.org/10.1021/ac1010316)

INVENTOR PROFILE

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