



Long Read



Methylation Arrays



Targeted



WES



WGS

# Array Based Genome Wide Methylation Analysis

## Profiling methylation of CpG islands and more

Epigenetic processes play important roles in health and diseases. DNA methylation is a key component of gene regulation. Mapping DNA methylation sites in clinical samples can potentially identify genes linked to specific disease mechanisms, drug targets or predictive biomarkers for disease diagnostics. Interpreting DNA methylation data can also facilitate quality control of cultured cells as cell states are reflected in their DNA methylation patterns.

GenomeScan works with Illumina’s high density Infinium Methylation EPIC BeadChip, which offers a comprehensive genome wide coverage not only of CpG islands but also other CpG and non-CpG methylated sites identified in human stem cells, a variety of promoter and enhancer sites, and DNase hypersensitive sites. The automated workflow results in an unprecedented high concordance between arrays and the results are accessible through our web-based user portal.

### Input material

#### Isolated genomic DNA

- Required input: 500 -750 ng / sample (based on fluorescent measurement)
- Minimum volume: 25 µl / sample
- Quality: Column or bead purified DNA, DNA from FFPE tissue is also possible

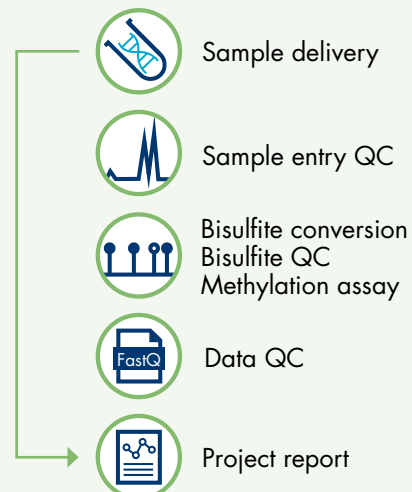
#### MethylationEPIC BeadChip

- ±935K methylation sites
- Includes 99% of RefSeq genes
- Covers 95% of CpG islands

#### Deliverables

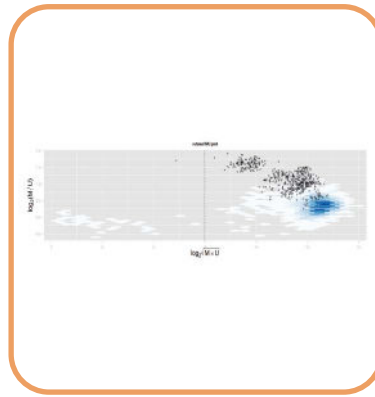
- iDAT files via secured electronic transfer
- Comprehensive QC-report
- Optional data analysis with comprehensive report

### NGS Laboratory workflow

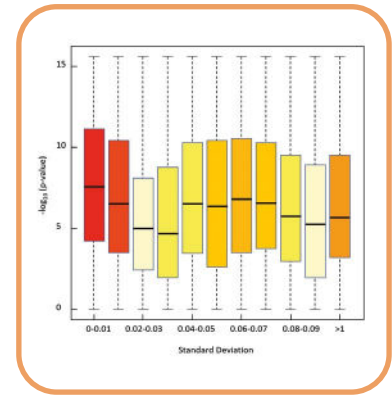


Control metric	Type of control	Result
Staining	Sample-independent	QC Passed
Hybridization	Sample-independent	QC Passed
Target Removal	Sample-independent	QC Passed
Extension	Sample-independent	QC Passed
Bisulfite Conversion I	Sample-dependent	QC Passed
Bisulfite Conversion II	Sample-dependent	QC Passed
Specificity I	Sample-dependent	QC Passed
Specificity II	Sample-dependent	QC Passed
Negative	Sample-dependent	not included
Non-polymorphic	Sample-dependent	QC Passed

System control for EPIC array



Bisulfite conversion control



DNA methylation variability

## Committed to your project

### Data quality guarantee

By adding a positive control sample to your set of samples, the expected high data quality can be checked by us before sending you the results.

### Interpretation of methylation data

We have developed computational models to process, analyze and interpret large-scale DNA methylation sets. Our service makes genome-wide DNA methylation mapping of a large number of samples possible at a high resolution.

### Publication ready results

We deliver comprehensive, consistent and transparent information. Bioinformatic methods for visualization of your DNA methylation data facilitate results presentation and help prepare your manuscript.

## Applications

Projects that benefit from DNA methylation profiling by Infinium arrays include:

- Study of clinical cohorts
- Patient stratification
- Study of age-related pathologies, such as cancer, osteoarthritis, and neurodegeneration
- Genetic disease marker identification
- Identification of possible drug targets
- Personalized medicine development

## Custom solutions

At GenomeScan, we continuously improve our services and validate new solutions. Take advantage of our pilot program in which bioinformatics pipelines can be tailored to your specific needs, allowing more in-depth mining of your dataset. In addition to that, we offer various customizable publication grade visualization options to present your results.

## About GenomeScan

As an ISO-accredited leading Dutch Next Generation Sequencing service provider, GenomeScan develops customizable NGS solutions for pharmaceutical and biotech companies, healthcare providers and academic institutions. By providing state-of-the-art tools to analyze genetic disorders fast, affordably, and effectively, GenomeScan fosters innovation through partnership with medical centers and research laboratories.