Methylation profiling

Methylation profiling is the process of measuring the pattern of DNA methylation — the addition of a methyl group (CH_3) to cytosine residues, typically at CpG dinucleotides — across specific regions or the entire genome.

Definition: Methylation profiling is a genomic analysis technique used to identify and quantify DNA methylation patterns, which are key epigenetic modifications influencing gene expression, cell differentiation, and disease states such as cancer.

Key points: It helps distinguish between normal and abnormal epigenetic states.

Commonly used in cancer diagnostics, developmental biology, and neuroscience.

Techniques include:

Bisulfite sequencing (e.g., WGBS)

Methylation arrays (e.g., Illumina 450K, EPIC)

MeDIP-seq (methylated DNA immunoprecipitation sequencing)

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