Genetic in Epigenetics Research: meSNPs and DNA methylation haplotype

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In the past decades, epigenetic dynamics, especially DNA methylation, have been demonstrated the high involvement in developmental regulation and diseases initiation. In the traditional definition, epigenetics is the study of heritable phenotype changes do not involve alterations in the DNA sequence. However, epigenetics always have strong relationship with genetic structure that have been demonstrated in meSNPs and DNA methylation haplotype. meSNPs represent types of SNPs whose polymorphism will partial influence the methylation status, such as CpG-SNPs. Genetic variants occurred in CpG-SNPs will create or disrupt CpG dinucleotide which are dominant methylation unit in human genome. Furthermore, DNA methylation haplotype represents the continuous methylation status along same chromosome, which reflected the correlation of methylation status between adjacent meSNPs.

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