



## **The Relevance of epigenetic signature in blood with target tissues in chronic diseases**

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### **Abstract**

Recent studies have shown that DNA methylation markers in peripheral blood may hold promise as biomarkers for chronic diseases. Here, we evaluated the diagnostic and predictive potential of epigenetic biomarkers in chronic diseases, specially diabetes and obesity. By performing genome-wide DNA methylation profiling in blood, we demonstrated that chronic diseases such as obesity and diabetes has a significant impact on the DNA methylation perturbations in blood. Specifically, by measuring the methylation levels of over 450,000 CpGs in peripheral blood cells, we derived DNA methylation signatures that can predict the presence of diabetes progression and obesity. We also provide the relevance of biomarkers between blood and target tissues, such as islet, pre-adipocyte and adipocyte. Finally, we show that blood DNA methylation biomarker has relevance with its counterpart tissues or cells. The significance of the blood epigenomic biomarkers for diabetes and obesity will be discussed.