Liquid Biopsy Based Microbial Biomarker in Coronary Artery Disease Diagnosis

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Abstract : The human microbiome has been associated with cardiological conditions and this relationship is becoming to be defined beyond the gastrointestinal track. In this study, we investigate the alteration in circulatory microbiota in the context of Coronary Artery Disease (CAD). We received circulatory blood samples from suspected CAD patients and maintain 16S ribosomal RNA sequencing to identify each patient's microbiome. It was found that Corynebacterium and Methanobacteria genera show statistically significant differences between healthy and CAD patients. The overall biodiversities between the groups were observed to be different revealed by machine learning classification models. We also achieve and demonstrate the performance of a diagnostic method using circulatory blood microbiome-based estimation.

Keywords : coronary artery disease, blood microbiome, machine learning, angiography, next-generation sequencing

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