

휘발성대사물질을 이용한 암진단 및  
토탈 헬스케어의 실현을 위한 향후 과제

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Among small-molecule metabolites that are emitted from the human body, organic and inorganic volatiles have great potential as biomarkers for the early detection and treatment of diseases, particularly cancer. For instance, the detection of volatile organic metabolites (VOMs) in blood samples or the headspace of cancer cells, and consequently in exhaled breath, is an emerging approach for diagnosing lung cancer. Breath samples have been investigated to test not only cancer but also other types of diseases that can be detected by profiling VOCs in exhaled breath. Zeolites are a class of high-silica crystalline aluminosilicates with defined pore diameters smaller than 2 nm. ZSM-5 is the most studied zeolite of the past decade because of its unique channel structures with pore opening sizes. Recently, we have demonstrated a novel thin film microextraction method based on several types of zeolite/polymer composites, which are assessed in the direct extraction of VOMs from aqueous human body fluids. In this conference, our recent approaches from biological and engineering aspects will be presented for rapid diagnosis of diseases