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# Ambient Ionization Mass Spectrometry: Technique for On-Site Detection of Biomarkers on Skin, Saliva and Breath to Enhance Clinical Decision Making

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Some of metabolites and wastes are released from body through skin, saliva and breath. Even some of these metabolites are potential biomarkers for diagnosing diseases, current analytical techniques are unable to efficiently characterize them for the difficulty in sampling and their presence in extremely low quantity. In this study, ambient ionization tandem mass spectrometry (AIMS) combined with noninvasive probe sampling was applied to rapidly characterize various metabolites and ingested medicine on skin, saliva and breath. With the features of simple, rapid and highly sensitive of the AIMS, the following researches have been conducted: (1) characterize biomarkers on skin, saliva, and breath for rapid disease diagnosis; (2) characterize the ingested targeted cancer drugs on skin for evaluating the effectiveness of the mediine; (3) obtain pharmacokinetic profiles of medicines on skin to determine their metabolic rate for precision medicine; (4) identify the ingested toxins on skin, saliva and urine for emergency management; and (5) construct molecular imaging of specific metabolites and medicine to reveal the distribution of these compounds on whole body skin.