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Toxicant exposure marker discovery using different mass spectrometry-based metabolomics data processing methods

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Humans can be exposed to various toxicants through the consumption of food and many other daily activities. Discovering exposure markers is crucial for assessing human exposure to these toxicants. Toxicants often undergo biotransformation when they enter the human body. Therefore, exposure levels are commonly assessed by measuring the concentrations of toxicant metabolites in biological samples, or so called "biomonitoring". Mass spectrometry (MS)-based metabolomics analyses allow the systematic identification of the complete set of small-molecule chemicals within a biological sample and therefore may lead to the identification of novel exposure markers. Metabolomics data processing methods are used to identify metabolites in the biological samples where metabolites are typically present at low levels in a complex matrix background. Several metabolomics data processing methods have been developed to facilitate metabolite detection in MS data. In this talk, how these data processing methods can be applied to discover exposure markers will be discussed using food contaminant phthalates as an example.

Biography

Pao-Chi Liao completed his PhD in Analytical Chemistry from Michigan State University (MSU) in 1995 before doing Post-doctoral research in the Department of Biochemistry at MSU. He joined the Faculty at Department of Environmental and Occupational Health, National Cheng-Kung University, Taiwan in 1997, where he was promoted to Full Professor in 2006, and named Distinguished Professor in 2011. His research interests and fields of speciality include analytical chemistry, mass spectrometry, proteomics, biomarker discovery, cancer biomarkers, lung cancer metastasis and environmental and occupational health.

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