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NMR metabolomics as a tool for biomarker discovery: Hype, limitations and hope

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Abstract

Metabolomics technologies have recently come to the fore in the context of biomarker discovery. Metabolic dysfunction is a noted hallmark in numerous disease states, and thus multivariate measurement and analysis of metabolite parameters provides a potential window into both diagnostic as well as prognostic realms. In this presentation, the advantages and disadvantages of biomarker discovery by NMR metabolomics methods will be discussed. In particular, the use of quantitative methods for metabolite analysis will be contextulized against other tools such as mass spectrometry based metabolite discovery. A biological context will be provided in our clinical oncology studies in the areas of pancreatic, colorectal, lung and brain cancer.

Biography

Weljie is a Research Assistant Professor of Pharmacology at the University of Pennsylvania and an Adjunct Assistant Professor of Science (Calgary). His research Interests include environmental metabolomics and translational research using nuclear magnetic resonance spectroscopy and mass spectrometry. He obtained his B.Sc in Chemistry, and a Certificate in Engineering, from Mount Allision University (1992), and a Ph.D. Structural Biology from the University of Calgary (2003). Dr. Weljie trained as an industrial post-doctoral fellow in NMR Metabolomics with Chenomx Inc (2006-2007). He has been a visiting scientist at the University of Cambridge (2007), University of Cagliari, Italy (2007, 2011), and Aga Khan University, Karachi (2008).