
Preface

After accepting the task to edit a volume of *Methods in Molecular Biology* devoted to metabolic profiling, I began to contemplate the definition of the term. Fiehn referred to "metabolic profiling" as the identification and quantification of a select number of metabolites in an entire metabolic pathway or intersecting pathways (1). Closely related disciplines were targeted metabolite analysis, metabolic fingerprinting, and metabolomics, the latter of which was defined as the quantitative measurement of perturbations in the metabolite complement of a biological system (2). These four terms are often used interchangeably; indeed, in reviewing the literature over the past 40 years, it is evident that these various disciplines of metabolite analysis are related via an evolution of methods and technology. For example, while the field of metabolomics is now 10 years old, the protocols and instrumentation that form the foundation for the myriad approaches of this discipline are based on those originally established for the diagnosis of inborn errors of metabolism and drug metabolite analysis. Thus, in compiling this volume, I have made an attempt to incorporate protocols that are illustrative of the evolution of metabolic profiling from single molecule analysis to global metabolome profiling. The constraints of this volume necessitate that its contents will be perspective based, rather than comprehensive. However, it is my hope that the methods contained herein will be a resource for both established and new investigators in the field of metabolic profiling.

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References

1. Fiehn, O. (2002) Metabolomics – the link between genotypes and phenotypes. *Plant Mol Biol* 48, 155–171.
2. Nicholson, J. K., Lindon, J. C., Holmes, E. (1999) 'Metabonomics': understanding the metabolic responses of living systems to pathophysiological stimuli via multivariate statistical analysis of biological NMR spectroscopic data. *Xenobiotica* 29, 1181–1189.