

## Preface

An impressive amount of data has emerged from genomics and proteomics ventures yet this has often served more to highlight the complexity of cellular regulation than to elucidate mechanism. It is also evident that biochemical control is not strictly hierarchical and that intermediary metabolism can contribute to control of regulatory pathways. Metabolic studies are therefore increasingly contributing to gene function analyses, and an increased interest in metabolites as biomarkers for disease progression or response to therapeutic intervention is also evident in the pharmaceutical industry. Front Line Strategic Consulting recently stated (September, 2002) that, worldwide, the metabolomics industry is anticipated to grow at a compound rate of over 40% over the next five years and that the market for metabolomic technology sales will exceed \$255 million by 2007.

The purpose of this book is to offer guidelines as to the technology currently available for such pursuits and the bioinformatics and database strategies now being developed. We present evidence that metabolic profiling is a valuable addition to genomics and proteomics strategies devoted to drug discovery and development, and believe that metabolic profiling may be seen to offer numerous advantages, as will be highlighted in this volume.

There has been a number of recent literature reviews devoted to metabolic profiling and an increasing number of related conferences, including the First International Congress of Plant Metabolomics (Wageningen, 2002) and the Systemics Conference (San Francisco, 2002). The genesis of this book can be traced to the First Annual Cambridge HealthTech Institute Conference on Metabolic Profiling (Chapel Hill, 2001) and a subsequent conference report

published in *Drug Discovery Today*. There has, however, been no definitive volume that describes progress in this area, particularly in the health care arena, and this book aims to address this. It is not, however, intended as a complete review of all that is going on in pharmaceutically directed metabolic profiling. We have not addressed *in silico* modeling, for example, and of course there has already been several excellent volumes on metabolic control/regulation and the technological impact thereof.

We hope that the book will be of interest to researchers in the pharmaceutical industries (Big Pharma and small venture capital endeavors), academe-industry technology transfer organizations and academic researchers. The bias of the book is to healthcare and the pharmaceutical industry but metabolic profiling has been extensively applied in the agriculture and microbiological arenas. Some of the book contributors have developed their expertise in these areas and have much to offer our colleagues in biomedicine. We are of course greatly indebted to our contributors without whom this volume would not have been possible. They have succeeded in ensuring a volume of high scientific merit and quality.

Finally, we would like to acknowledge our colleagues who contributed valuable comments and support, and helped in proofreading. Roxanne LaPlante and Elizabeth Collantes diligently proofread many chapters and helped with manuscript preparation. They, along with Margann Wideman, Ying Ping Zhang, Nancy Wall and Gilles Goetz, have made valuable contributions to the development of metabolic profiling at Pharmacia. We also thank David Lester for valuable suggestions at the onset of this book. We would like to thank the University of Wales, Aberystwyth and the UK BBSRC and UK EPSRC for allowing us the academic freedom and financial assistance to investigate metabolic profiling, and look forward to continuing this research in the University of Manchester Institute of Science and Technology (UMIST).

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