

This article was downloaded by:

On: 16 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of Immunoassay and Immunochemistry

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713597271>

The Book Corner

To cite this Article (2005) 'The Book Corner', *Journal of Immunoassay and Immunochemistry*, 26: 3, 245 – 249

To link to this Article: DOI: 10.1081/IAS-200062503

URL: <http://dx.doi.org/10.1081/IAS-200062503>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

The Book Corner

Chemical Genomics, Ferenc Darvas, András Guttman, György Dormán, Eds., Marcel Dekker, Inc., New York, NY, 2004, 357 pp. Price: \$135.00.

After the completion of the sequencing phase of the Human Genome Project, the focus of contemporary science shifts to reveal gene functions, i.e., the examination of proteins that are encoded within. The goal of chemical genomics is to dissect the function of organisms and cells by having a small-molecule partner for every gene product. Chemical genomics holds the promise for the determination of the function and biological role of any genes through small-molecule interactions with the protein or proteins that is expressed by that particular gene. In addition, various chemical genomics methods can address such biological questions that are not amenable to genetic manipulation or to structural genomic approaches. In the last couple of years, significant advances have been made in the fields of genomics-driven drug discovery, chemoinformatics, and high-throughput screening, proven by the increasing number of papers that have appeared in the literature already utilizing chemical genomics tools.

This book is dedicated solely to chemical genomics, discussing a full spectrum of chemical genomics topics, as well as related technologies ranging from *in silico* approaches to experimental techniques. The first part describes the definition and basics of chemical genomics. The second part focuses on specific approaches, discussing the generation and utility of small-molecule probes in the study of specific gene products. The last three chapters are practical case studies related to the area of drug discovery.

This book provides an overview of this emerging field to practitioners in drug discovery, medicinal chemistry, and molecular biology as well as scientists working in the laboratories and for students at the graduate and undergraduate levels. It is well written and presented.

Table of Contents

1. What is Chemical Genomics? P.R. Caron, (1).
2. *In Silico* Chemical Genomics, G.M. Keserű and Z. Kovári, (5).
3. Optimizing the Chemical Genomics Process, W. Janzen, P. Bernasconi, L. Cheatham, P. Mansky, I. Popa-Burke, K.P. Williams, J. Worley, and N. Hodge, (59).

4. Microchip-Based High-Throughput Screening in Chemical Genomics, J. Khandurina, T. Zhu, and A. Guttman (101).
5. Utilizing Small Molecules in Chemical Genomics: Toward HT Approaches, G. Dormán, and F. Darvas, (137).
6. Multifunctional Photoprobes for Rapid Protein Identification, Y. Sadakane, and Y. Hatanaka, (199).
7. Defining the Lipidome: A New Target for Therapeutics, L. Feng, C.G. Ferguson, B.E. Drees, P.O. Neilsen, and G.D. Prestwich, (215).
8. Pharmacogenetic Aspects of Dopaminergic Neurotransmission-Related Gene Polymorphisms, Z. Nemoda, O. Kiraly, C. Barta, and M. Sasvari-Szekely, (275).
9. Approximate String-Matching Algorithm for DNA Patenting Evaluation in the Pharmaceutical Industry, G. Dufresne, L. Takacs, and M. Duval, (315).

Reviewed by
Haleem J. Issaq, Ph.D.
Book Corner Editor

Biotransformations and Bioprocesses, Mukesh Doble, Anil Kumar Kruthiventi, and Vilas Gajanan Gaikar, Marcel Dekker, Inc., New York, NY, 2004, 371 pp. Price: \$175.00.

Biotransformation deals with the use of a biocatalyst for the mediation of a chemical reaction, for the synthesis of an organic chemical or destruction of an unwanted chemical. Bioprocess deals with the application of technology and engineering principles to design, develop, and analyze these processes.

This book is concise, covering chemistry and engineering aspects of biotransformation and giving an overview of the various steps involved during the transition from a lab to the plant.

The book is not intended to be an encyclopedia, but covers the current and relevant matter in a succinct way, addressed to an interdisciplinary audience. The book has illustrations, homework problems, and innovative extensions. This approach will encourage students to obtain a more in-depth understanding of key scientific and engineering concepts. It is designed to be a textbook for undergraduate and graduate-level courses in biotechnology (including fermentation) and other interdisciplinary courses in pharmacy, biosciences, and organic synthesis.

The book will appeal to a diverse audience of chemists, biologists, and chemical technologists/engineers. It will be useful for biologists who would like an overview of chemical and engineering principles and to chemical engineers with no knowledge of biotransformations and biochemical engineering fundamentals. The book assumes that engineers have very little background in synthetic chemistry, and therefore builds up the knowledge from

the basics. Similarly, the book assumes that organic chemists have very little knowledge in chemical reaction engineering. The book is not written for chromatographers.

Table of Contents

1. Introduction and Overview, (1).
2. Chemical Bonding, Structure, and Reaction Dynamics, (7).
3. Enzyme: Structure and Functions, (31).
4. Biotransformations, (57).
5. Experimental Techniques, (121).
6. Frontiers in Biotransformations, (135).
7. Enzyme and Biocell Kinetics, (139).
8. Biochemical Reactor, (169).
9. Fermentation, (191).
10. Reactor Engineering, (209).
11. Stirred Bioreactors, (241).
12. Tower Bioreactors, (273).
13. Introduction to Downstream Processing, (297).
14. Industrial Examples, (319).
15. Waste Treatment, (335).
16. Scale-up of Biochemical Processes, (347).

Reviewed by
Haleem J. Issaq, Ph.D.
Book Corner Editor

Unraveling Lipid Metabolism with Microarrays, Alvin Berger, Matthew A. Roberts, Eds., Marcel Dekker, New York, NY, 2005, 445 pp. Price: \$179.95.

Spanning technologies in genomics, transcriptomics, and metabolomics, this reference demonstrates the utilization of microarrays and transcriptomic approaches to clarify the biological function of lipids – reviewing current studies and previously unpublished research.

Lipids are known to affect a plethora of physiological functions in numerous organisms. Lipids have known structural roles as components of biological membranes, where they associate with proteins and affect membrane biophysical properties. In *Understanding Lipid Metabolism with Microarrays and Other “Omic” Approaches* the editors aim was to demonstrate the power of microarrays and transcriptomic approaches to dramatically increase our understanding of how lipids function, and to expand the known biological functions of lipids. Furthermore, the focus on microarray technology provides guidance of how to handle omic datasets, which will benefit the lipid and scientific community.

This is an interesting book, which is remotely related to the work of chromatographers.

Table of Contents

Data Analysis and Stristical Interpretation in Microarray Experiments

1. Statistical Design and Data Analysis for Microarray Experiments, D.R. Goldstein and M. Delorenzi, (1).

Exploring Fatty Acid and Cholesterol Metabolism using Microarrays

2. Dietary Effects of Arachidonate-Rich Fungal Oil and Fish Oil on Murine Hepatic Gene Expression: Focus on Newly Described LC-PUFA-Regulated Genes, A. Berger and M.A. Roberts, (35).
3. Dietary Effects of Arachidonate-Rich Fungal Oil and Fish Oil on Murine Hippocampal Gene Expression, A. Berger and M.A. Roberts, (69).
4. Exploring the Effects of Polyunsaturated Fatty Acids on Gene Expression in Human Hepatocyte (HepG2 Cells) Using DNA Chip, Y. Fujiwara and A. Masumoto, (101).
5. Neurological Effects of Dietary n-3 Fatty Acids in Rat Brain, T. Farkas, K. Kitajka, G. Barceló-Coblijn, and L. Puskás, (131).
6. Anterior and Posterior Cerebral Gene Expression in a Rat Model of Reduced Brain Docosahexaenoic Acid During Development, J.B. Gaines, N.E.J. Berman, and S.E. Carlson, (147).
7. A Genomic Approach to Studying Leptin Signaling in a Hypothalamic Cell Line, W. Kaszubska, P. Hessler, and P.E. Kroeger, (171).
8. Characterizing Cholesterol Metabolism in Atherosclerosis Susceptible and Resistant Mouse Models Using DNA Microarrays, L. Vergnes, J. Phan, and K. Reue, (195).
9. Microarray Analysis of Lipid Metabolism in Drug Abuse, Neurological and Psychiatric Disorders, E. Lehrmann, C.-T. Lee, J. Chen, W.J. Freed, and K.G. Becker, (215).

Exploring the Roles of PPARS, HNFS, and SREBPS using Microarrays

10. Microarray Analyses of SREBP-1 Target Genes, N. Yahagi and H. Shimano, (237).
11. Understanding the Coordinated Effects of PPARs on Lipid Metabolism Using Microarrays, S. Kersten, P. Escher, S. Tafuri, and W. Wahli, (249).
12. Microarray Analysis of Changes Induced by Peroxisome Proliferator-activated Receptor α Agonists in the Expression of Genes Involved in Lipid Metabolism, K. Yamazaki, T. Hihara, H. Yoshitomi, J. Kuromitsu, and I. Tanaka, (265).

Exploring Lipids and Carcinogenesis using Microarrays

13. How Dietary Long-Chain Fatty Acids Induce Gene Signals Involved in Carcinogenesis, P. Anderle, P. Farmer, A. Berger, and M.A. Roberts, (295).
14. Omega-3 Polyunsaturated Fatty Acid Against Colon Cancer: DNA Microarray Analysis of Gene-Nutrient Interactions, B.A. Narayanan, N.K. Narayanan, and B.S. Reddy, (321).
15. Ellagic Acid Modulates Lipid Metabolism in Prostate Cancer: Gene-Nutrient Interactions, B.A. Narayanan, N.K. Narayanan, O. Geoffroy, and D.W. Nixon, (341).

Exploring How Lipids Affect Insulin Secretion using Microarrays

16. Changes of Gene Expression in INS-1 Cells: The Implication of Palmitate in Lipotoxicity, J. Xiao, P.B. Jeppesen, A. Reziwanggu, K. Hermansen, M. Kruhøffer, T. Ørntoft, (357).
17. Use of Microarrays to Investigate the Transcriptional Effects of Protein Tyrosine Phosphatase IB (PTP1B): Implications for Diabetes and Obesity, C.M. Rondinone and J.F. Waring, (381).

Other “omic” Techniques for Unraveling Lipid Metabolism

18. Metabonomics as a Tool for Understanding Lipid Metabolism, D.J. Grainger, D.E. Mosedale, E. Holmes, and J.K. Nicholson, (405).
19. Zebrafish Model of Lipid Metabolism for Drug Discovery, A.L. Rubinstein, S-Y. Ho, and S.A. Farber, (423).

Reviewed by
Haleem J. Issaq, Ph.D.
Book Corner Editor