

Stuart Handwerger and Bruce J. Aronow (eds.): Genomics in Endocrinology: DNA Microarray Analysis in Endocrine Health and Disease

Humana Press, Totowa, NJ, 2008, 288 p, € 150.32, ISBN: 9781588296511

Aaron J. W. Hsueh

Received: 28 January 2008 / Accepted: 26 March 2008 / Published online: 10 April 2008
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“Genomics in Endocrinology” edited by Stuart Handwerger, M.D. and Bruce J. Aronow, Ph.D. presents a series of short articles by hormonal researchers who utilized DNA microarray techniques to analyze the expression of diverse genes in different hormone-producing and hormone-responsive tissues. In addition, gene expression was monitored in diseased tissues using the DNA microarray approach. This monograph represents a state-of-the-art summary of the present use of DNA microarray analyses in hormonal research for readers interested in this topic. The interesting chapters by 40 some authors represent key DNA microarray findings in the field and provide a useful resource for readers to get an overview of this area of research. In addition, the introductory chapter by the editors provides a useful lead-in to the general approach, including data analyses, statistical consideration, data storage and validation, as well as potential pitfalls.

The major advantage of the DNA microarray approach is certainly the high-throughput, genome-wide analyses and the identification of candidate genes important for physiological processes of interest. Although many of the chapters deal with a general survey of the expression of

multiple genes, few chapters used DNA microarray data to provide molecular classification of different disease states. Of particular interest, several chapters described more advanced use of DNA microarray data, including analyses of promoter regions of co-expressed genes, identification of candidate genes related to a particular disease, advanced chromatin immuno-precipitation microarray for genes regulated by transcriptional factors, and attempts to reveal gene pathways based on expression data. The overall field is progressing from the straightforward description of gene expression patterns to the formulation of new hypotheses based on gene expression to allow a better understanding of role of genes in physiology and pathophysiology.

A more appropriate title for the present monograph is probably “Transcriptomics of hormone-producing and hormone-responsive tissues” due to the emphasis on DNA microarray analyses and a lack of information on genomic topics such as single nucleotide polymorphism, gene copy numbers, genome-wide analyses of the phylogenetic relationship of hormone and receptor genes, identification of new hormone and receptor genes, and other genomic issues.

A. J. W. Hsueh (✉)
Division of Reproductive Biology, Department of Obstetrics and
Gynecology, Stanford University School Of Medicine, 300
Pasteur Drive, Room A344, Stanford, CA 94305-5317, USA
e-mail: aaron.hsueh@stanford.edu