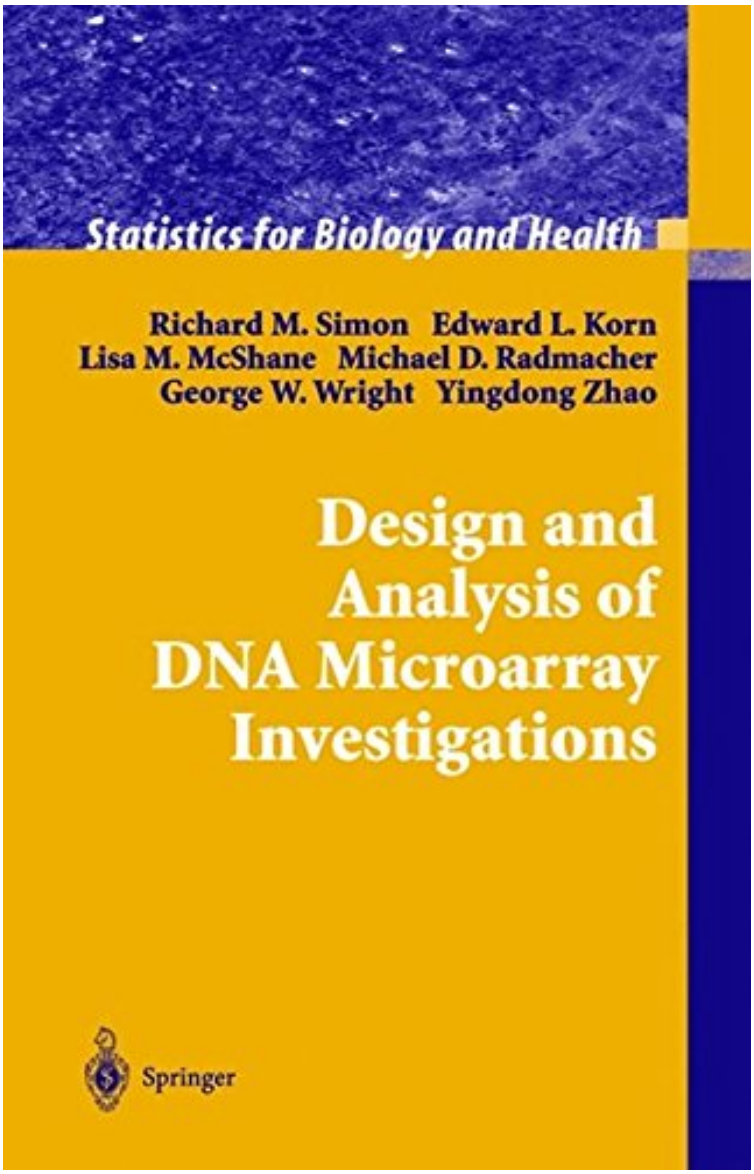
Design and Analysis of DNA Microarray Investigations (Statistics for Biology and Health)

Richard M. Simon, Edward L. Korn, Lisa M. McShane, Michael D. Radmacher, George W. Wright, Yingdong Zhao



#3109247 in Books Richard M Simon 2004-01-08Ingredients: Example IngredientsOriginal language:EnglishPDF # 1 9.20 x .80 x 6.10l, 1.30 #File Name: 0387001352200 pagesDesign and Analysis of DNA Microarray Investigations | File size: 41.Mb

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purchasing it in order to gage whether or not it would be worth my time, and all praised Design and Analysis of DNA Microarray Investigations (Statistics for Biology and Health):

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The analysis of gene expression profile data from DNA micorarray studies are discussed in this book. It provides a review of available methods and presents it in a manner that is intelligible to biologists. It offers an understanding of the design and analysis of experiments utilizing microarrays to benefit scientists. It includes an Appendix tutorial on the use of BRB-ArrayTools and step by step analyses of several major datasets using this software which is available from the National Cancer Institute.

From the reviews: "This book gives a welcome introduction to microarray data and its analysis. Such analyses have been performed for many years,but only recently are new investigators able to read about the topic in such a concise and well-written format." Journal of Biopharmaceutical Statistics, Issue #4, 2005 "I enjoyed it and recommend it for anyone working in this area." Short Book s of the ISI, April 2005 "This is a book to get your biological collaborators to read, because it provides good statistical perspectives on the design of experiments and on other methodologies needed to design and analyze microarray experiments. The treatment is straightforward, but not simple." Journal of the American Statistical Association, June 2005 "The book presents the basics of microarray technology and follows with chapters on designing experiments and processing the scanned images. Further to this, it provides an introduction to selecting appropriate analysis techniques that will result in valid answers. The understanding of many of the statistical applications is enhanced by the inclusion of several real-world medical datasets as examples." (Rebecca E. Walls) "A very good overview of the issues and techniques, suitable for a non-specialist readership that would be interested to embark on microarray studies. Throughout, the authors discuss both spotted cDNA arrays and oligonucleotide arrays which adds further merit to this book. A great asset of this book is that all the example data are freely available for analysis . an excellent introduction to all aspects of microarray analyses a very good read ." (Dirk Jan De Koning, Genetical Research, Vol. 84, 2004) "This book presents a concise overview of many useful statistical approaches to microarray data . This broad range of topics makes the book unique and useful. this book is a valuable resource for microarray experimenters. I enjoyed it and recommend it for anyone working in this area." (R. Tibshirani, Short Book s, Vol. 25(1), 2005) "This book is concerned with methods of analyzing data obtained from DNA microarray experiments. The book is written for biologists without a strong statistical background, and also for computer scientists and statisticians interested in being collaborators in studies utilizing microarrays." (Alexander Mitrophanov, Zentralblatt MATH, Vol. 1039(8), 2004) "The small number of noisy microarrays relative to the large number of genes presents a challenge to biologists using this technology. This book aims to aid the biologist in solving some of these problems . It largely achieves this aim. the chapters are logically integrated and perfectly consistent with each other. describes, overall, a sensible approach to microarray analysis. the authors have done an excellent job in presenting sensible statistical methodology to the biological community." (Ernst Wit, Human Genetics, Vol. 1(6), November "For the biomedical researcher, it promises an introduction and survey to the principles of biometrical thinking . For the biometrician, it describes typical experimental approaches, data structures, design and analysis problems . We are convinced that this book is a must for all readers who are interested in the design, conduct and analysis of microarray gene expression experiments. It will certainly impact on the necessary communication between researchers of all type engaged in this truly cross disciplinary subject." (Dirk Repsilber and Andreas Ziegler, Metrika, Vol. 64, 2006) "Analysis of data arising from microarray experiments is one of the very exciting areas in statistics these days. it is important to have text books that can serve the dual purpose of catering basic biology related to microarray experiments to statisticians and exposing to biologists the basic statistical techniques needed for designing microarray experiments and analyzing data generated from such experiments. This book will be quite useful for biostatisticians and biologists interested in microarray experiments and related data analysis." (Probal Chaudhuri, Sankhya, Vol. 67 (1), 2005) "Microarray experiments are rapidly growing in popularity for their ability to analyze DNA samples with relative ease. This book, penned by a collection of current and former members of the Biometric Research Branch at the National Cancer Institute, offers a concise yet comprehensive guide to designing and analyzing such experiments. The book is aimed at biologists with limited statistical knowledge ." (Journal of Applied Statistics, Vol. 32 (4), 2005)From the Back CoverThis book is targeted to biologists with limited statistical background and to statisticians and computer scientists interested in being effective collaborators on multi-disciplinary DNA microarray projects. State-of-the-art analysis methods are presented with minimal mathematical notation and a focus on concepts. This book is unique because it is authored by statisticians at the National Cancer Institute who are actively involved in the application of microarray technology. Many laboratories are not equipped to effectively design and analyze studies that take advantage of the promise of microarrays. Many of the software packages available to biologists were developed without involvement of statisticians experienced in such studies and contain tools that may not be optimal for particular applications. This book provides a sound preparation for designing microarray studies that have clear

objectives, and for selecting analysis tools and strategies that provide clear and valid answers. The book offers an in depth understanding of the design and analysis of experiments utilizing microarrays and should benefit scientists regardless of what software packages they prefer. In order to provide all readers with hands on experience in data analysis, it includes an Appendix tutorial on the use of BRB-ArrayTools and step by step analyses of several major datasets using this software which is freely available from the National Cancer Institute for non-commercial use. The authors are current or former members of the Biometric Research Branch at the National Cancer Institute. They have collaborated on major biomedical studies utilizing microarrays and in the development of statistical methodology for the design and analysis of microarray investigations. Dr. Simon, chief of the branch, is also the architect of BRB-ArrayTools.