

Chapman & Hall/CRC
Mathematical and Computational Biology Series

Richly illustrated in color, **Statistics and Data Analysis for Microarrays Using R and Bioconductor, Second Edition** provides a clear and rigorous description of powerful analysis techniques and algorithms for mining and interpreting biological information. Omitting tedious details, heavy formalisms, and cryptic notations, the text takes a hands-on, example-based approach that explains the basics of R and microarray technology as well as how to choose and apply the proper data analysis tool to specific problems.

New to the Second Edition

Completely updated and double the size of its predecessor, this timely second edition replaces the commercial software with the open source R and Bioconductor environments. Fourteen new chapters cover such topics as the basic mechanisms of the cell, reliability and reproducibility issues in DNA microarrays, basic statistics and linear models in R, experiment design, multiple comparisons, quality control, data pre-processing and normalization, gene ontology analysis, pathway analysis, and machine learning techniques. Methods are illustrated with toy examples and real data, and the R code for all routines is available on an accompanying CD-ROM.

With all the necessary prerequisites included, this best-selling book guides readers from very basic notions to advanced analysis techniques in R and Bioconductor. The first half of the text presents an overview of microarrays and the statistical elements that form the building blocks of any data analysis. The second half introduces the techniques most commonly used in the analysis of microarray data.

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