1. Record Nr. UNINA9910831197303321 Autore Semizarov Dimitri Titolo Genomics in drug discovery and development [[electronic resource] /] / Dimitri Semizarov, Eric Blomme Hoboken, N.J., : Wiley, c2009 Pubbl/distr/stampa **ISBN** 1-281-93869-6 9786611938697 0-470-40977-0 0-470-40976-2 Descrizione fisica 1 online resource (496 p.) Altri autori (Persone) BlommeEric 615 Disciplina 615.19 Soggetti Pharmacogenomics Drug development Genetic toxicology **DNA** microarrays Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Genomics in Drug Discovery and Development; Contents; Preface; Nota di contenuto ACKNOWLEDGMENTS; 1. Introduction: Genomics and Personalized Medicine: 1.1. Fundamentals of Genomics: 1.2. The Concept of Personalized Medicine; 1.3. Genomics Technologies in Drug Discovery; 1.4. Scope of This Book; References; 2. Genomics Technologies as Tools in Drug Discovery: 2.1. Introduction to Genomics Technologies: 2.2. Gene Expression Microarrays: Technology; 2.2.1. Standard Microarray Protocol; 2.2.2. Monitoring the Quality of Input RNA for Microarray Experiments 2.2.3. Specialized Microarray Protocols for Archived and Small Samples 2.2.4. Quality of Microarray Data and Technical Parameters of Microarrays: 2.2.5. Reproducibility of Expression Microarrays and Cross-Platform Comparisons; 2.2.6. Microarray Databases and Annotation of Microarray Data; 2.2.6.1. Target Identification; 2.2.6.2. Disease Classification; 2.2.6.3. Compound Assessment; 2.3. Gene Expression Microarrays: Data Analysis; 2.3.1. Identification of

Significant Gene Expression Changes; 2.3.2. Sample Classification and Class Prediction with Expression Microarrays 2.3.3. Pathway Analysis with Gene Expression Microarrays2.3.4. Common Problems Affecting the Validity of Microarray Studies; 2.4. Comparative Genomic Hybridization: Technology; 2.5. Comparative Genomic Hybridization: Data Analysis; 2.6. Microarray-Based DNA Methylation Profiling; 2.7. Microarray-Based MicroRNA Profiling; 2.8. Technical Issues in Genomics Experiments and Regulatory Submissions of Microarray Data; 2.8.1. Study of a Drug's Mechanism of Action by Gene Expression Profiling; 2.8.2. Early Assessment of Drug Toxicity in Model Systems

2.8.3. Biomarker Identification in Discovery and Early Development2. 8.4. Patient Stratification in Clinical Trials with Gene Expression Signatures; 2.8.5. Genotyping of Patients in Clinical Studies to Predict Drug Response; 2.9. Conclusion; References; 3. Genomic Biomarkers; 3.1. Introduction to Genomic Biomarkers; 3.2. DNA Biomarkers; 3.2.1. DNA Copy Number Alterations; 3.2.1.1. DNA Copy Number Alterations in Cancer; 3.2.1.2. DNA Copy Number Alterations in Other Diseases; 3.2.1.3. Identification of DNA Copy Number Biomarkers in Drug Discovery; 3.2.2. Mutations; 3.2.2.1. p53 Mutations 3.2.2.2. K-ras Mutations3.2.2.3. EGFR Mutations; 3.2.2.4. Bcr-abl and KIT Mutations; 3.2.3. Epigenetic Markers; 3.3. RNA Biomarkers; 3.3.1. Gene Expression Biomarkers Validated as Diagnostic Tests; 3.3.2. Other Examples of Gene Expression Biomarkers: 3.4. Clinical Validation of Genomic Biomarkers; References; 4. Fundamental Principles of Toxicogenomics; 4.1. Introduction; 4.2. Fundamentals of Toxicogenomics; 4.2.1. Principle of Toxicogenomics; 4.2.2. Technical Reproducibility; 4.2.3. Biological Reproducibility; 4.2.4. Species Extrapolation; 4.3. Analysis of Toxicogenomics Data 4.3.1. Compound-Induced Gene Expression Changes

## Sommario/riassunto

Early characterization of toxicity and efficacy would significantly impact the overall productivity of pharmaceutical R&D and reduce drug candidate attrition and failure. By describing the available platforms and weighing their relative advantages and disadvantages, including microarray data analysis, Genomics in Drug Discovery and Development introduces readers to the biomarker, pharmacogenomic, and toxicogenomics toolbox. The authors provide a valuable resource for pharmaceutical discovery scientists, preclinical drug safety department personnel, regulatory personnel, discovery toxicologists