

1. Record Nr.	UNINA9910133454603321
Titolo	Label-free technologies for drug discovery [[electronic resource] /] / editors, Matthew Cooper, Lorenz Mayr
Pubbl/distr/stampa	Chichester, West Sussex, U.K., : John Wiley & Sons, 2011
ISBN	1-119-99027-0 1-283-37396-3 9786613373960 0-470-97913-5 0-470-97912-7
Descrizione fisica	1 online resource (350 p.)
Altri autori (Persone)	CooperM. A (Matthew A.) MayrLorenz
Disciplina	615.19 615/.19
Soggetti	Drug development Biosensors Pharmaceutical biotechnology
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.
Nota di contenuto	Label-Free TechnologiesFor Drug Discovery; Contents; Preface; List of Contributors; 1 The Revolution of Real-Time, Label-Free Biosensor Applications; 1.1 Introduction; 1.2 SPR Pessimists; 1.3 Setting Up Experiments; 1.4 Data Processing and Analysis; 1.5 The Good News; References; 2 Design and Implementation of Vertically Emitting Distributed Feedback Lasers for Biological Sensing; 2.1 Introduction; 2.2 DFB Laser Biosensor Design; 2.3 Fabrication and Instrumentation; 2.4 Experimental Results; 2.4.1 Vertically Emitting DFB Laser; 2.4.2 Bulk Material Sensing; 2.4.3 Sensitivity Resolution 2.4.4 Small Molecule Binding Detection2.5 Conclusions; Acknowledgements; References; 3 SPR Screening of Chemical Microarrays for Fragment-Based Discovery; 3.1 Introduction; 3.2 Key Features of Fragment Screening; 3.3 SPR Fragment Screening; 3.4 Synthesis of Library Compounds; 3.5 Library Design and Array Content; 3.6 Chemical Microarray Production; 3.7 Surface Plasmon Resonance;

3.8 SPR Imaging; 3.9 Array Visualization and Analysis; 3.10 Follow-up; 3.11 Applications: MMP Case Study; 3.11.1 Search for New Binding Modes; 3.11.2 Selectivity Studies; 3.12 Other Target Classes; 3.13 Conclusion
References
4 The CellKey R System: A Label-Free Cell-Based Assay Platform for Early Drug Discovery Applications; 4.1 Introduction; 4.2 Cellular Impedance Technology; 4.3 Target Identification and Validation; 4.4 Screening and Lead Optimization; 4.5 Conclusion; References
5 Dynamic and Label-Free Cell-Based Assays Using the xCELLigence System; 5.1 Introduction; 5.2 The xCELLigence System; 5.3 Principle of Detection; 5.4 Applications; 5.4.1 Cell Proliferation, Cytotoxicity and Time Dependent Cellular Response Profiling; 5.5 Functional Assays for G-Protein Coupled Receptors; 5.6 Conclusion
References
6 Selecting the Best HTS Hits to Move Forward: ITC Ligand Binding Characterization Provides Guidance; 6.1 Introduction; 6.2 Principles of Isothermal Titration Calorimetry (ITC); 6.3 Applications of ITC in Hit Validation; 6.3.1 Assay Design for Hit Confirmation and Affinity Determination; 6.3.2 Identification of Nonspecific Binders, Unstable Protein Targets and Multiple Binding Sites; 6.3.3 High Speed ITC Hit Characterization Assays; 6.4 Applications of ITC in Fragment-Based Drug Discovery; 6.4.1 Measuring Weak Affinities by ITC; 6.5 Applications of ITC in Mechanism of Action Studies
6.6 Applications of ITC in Lead Optimization
6.7 ITC as an Enzyme Activity Monitor; 6.8 Conclusion; References
7 Incorporating Transmitted Light Modalities into High-Content Analysis Assays; 7.1 Introduction; 7.2 Transmitted Light (Bright Field) Imaging; 7.3 Image Analysis of Phase Contrast Images; 7.4 Conclusion; References
8 Nonradioactive Rubidium Efflux Assay Technology for Screening of Ion Channels; 8.1 Introduction; 8.2 Ion Channels as Drug Targets; 8.3 Ion Channel Assays and Screening; 8.4 Nonradioactive Rubidium Efflux Assay Based on Atomic Absorption Spectrometry
8.5 A Typical Assay Protocol

Sommario/riassunto

Over the past two decades the benefits of label-free biosensor analysis have begun to make an impact in the market, and systems are beginning to be used as mainstream research tools in many drug discovery laboratories. Label-Free Technologies For Drug Discovery summarises the latest and emerging developments in label-free detection systems, their underlying technology principles and end-user case studies that reveal the power and limitations of label-free in all areas of drug discovery. Label-free technologies discussed include SPR, NMR, high-throughput mass spectrometry, resonan
