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Nota di contenuto	High-Throughput Screening in Drug Discovery; Foreword; List of Contents; Preface; List of Contributors; Part I Concept of Screening; 1 Chemical Genetics: Use of High-throughput Screening to Identify Small-molecule Modulators of Proteins Involved in Cellular Pathways with the Aim of Uncovering Protein Function; 1.1 Introduction; 1.2 Classical and Chemical Genetics; 1.2.1 Forward and Reverse Screens; 1.3 Identifying Bioactive Molecules; 1.4 Target Identification; 1.4.1 Hypothesis-driven Target Identification; 1.4.2 Affinity-based Target Identification 1.4.3 Genomic Methods of Target Identification1.4.4 Proteomic Methods; 1.5 Discovery for Basic Research Versus Pharmacotherapy Goals; 1.6 Chemical Genetic Screens in the Academic Setting; 1.7 Conclusions; 2 High-throughput Screening for Targeted Lead Discovery; 2.1 Chemical Libraries for High-throughput Screening; 2.2 Properties of Lead Structures; 2.3 Challenges to High-throughput Screening; 2.4 Assay Technologies for High-throughput Screening; 2.5 Laboratory Automation; 2.6 From Target Selection to Confirmed Hits -

	the HTS Workflow and its Vocabulary 2.7 Separating Specific Modulators from Off-Target Effects2.8 Data Analysis and Screening Results; 2.9 Conclusions; Part II Automation Technologies; 3 Tools and Technologies that Facilitate Automated Screening; 3.1 Introduction - the Necessity to Automate; 3.1.1 Compound Libraries; 3.1.2 Targets and Data Points; 3.1.3 Main Issues Facing HTS Groups Today; 3.1.4 Benefits of Miniaturization; 3.1.5 Benefits of Automated HTS; 3.1.6 Screening Strategies; 3.1.7 Ultra HTS (UHTS); 3.2 Sample Carriers; 3.2.1 A Brief History of the Microplate; 3.2.2 Microplate Usage Today; 3.2.3 Microplate Arrays 3.2.4 Non-microplate Alternatives3.2.4.1 Labchips; 3.2.4.2 LabCDs; 3.2.4.3 LabBrick; 3.2.4.4 Arrayed Compound Screening; 3.3 Liquid Handling Tools; 3.3.1 Main Microplate Dispense Mechanisms; 3.3.1.1 Pin Tools; 3.3.1.2 Air and Positive Displacement; 3.3.1.3 Peristaltic; 3.3.1.4 Solenoid-syringe; 3.3.1.5 Solenoid-pressure bottle; 3.3.1.6 Capillary Sipper; 3.3.1.7 Piezoelectric; 3.3.1.8 Acoustic Transducer; 3.3.2 HTS Liquid Handling Applications and Dispensing Technologies Used; 3.3.2.1 Bulk Reagent and Cell Addition; 3.3.2.2 Compound Reformatting and Nanoliter Dispensing 3.3.2.3 Cherry Picking and Serial Dilution3.3.2.4 Microplate Washing; 3.4 Detection Technologies; 3.4.1 Main Detection Modalities Used in HTS; 3.4.2 Plate Readers; 3.4.3 Plate Imagers; 3.4.3.1 Macro-imaging; 3.4.3.2 Micro-imaging; 3.4.4 Dispense and Read Devices; 3.4.5 Other Detection Technologies; 3.4.6 Automation of Detection Technologies; 3.4.7 Potential Sources of Reading Error; 3.5 Laboratory Robotics; 3.5.1 Traditional Workstations; 3.5.2 Robotic Sample Processors; 3.5.3 Plate Storage Devices; 3.5.4 Plate Moving Devices; 3.5.5 Fully Integrated Robotic Systems; 3.5.6 Turnkey Workstations 3.5.7 Automated Cell Culture Systems
Sommario/riassunto	Backed by leading authorities, this is a professional guide to successful compound screening in pharmaceutical research and chemical biology, including the chemoinformatic tools needed for correct data evaluation. Chapter authors from leading pharmaceutical companies as well as from Harvard University discuss such factors as chemical genetics, binding, cell-based and biochemical assays, the efficient use of compound libraries and data mining using cell-based assay results.For both academics and professionals in the pharma and biotech industries working on small molecule screening.