Immunoassay Automation A Practical Guide

This comprehensive landmark book describes the technology of the future in diagnostic medicine, how to integrate it into the modern hospital and how to work with people to adapt, change and plan for a smooth transition to a fully robotic laboratory. Features an extensive section on point-of-care testing along with a modern perspective of how this will transform medicine. Global experts in their fields have authored all chapters which include a unique one on machine vision and another (with several plates) that discusses the automation of a clinical laboratory in Japan.

"Summaries of papers" contained in the journal accompany each issue, 19--

The discovery of uniform latex particles by polymer chemists of the Dow Chemical Company nearly 50 years ago opened up new exciting fields for scientists and physicians and established many new biomedical applications. Many in vitro diagnostic tests such as the latex agglutination tests, analytical cell and phagocytosis tests have since become rou tine. They were all developed on the basis of small particles bound to biological active molecules and fluorescent and radioactive markers. Further developments are ongoing, with the focus now shifted to applications of polymer particles in the controlled and di rected transport of drugs in living systems. Four important factors make microspheres interesting for in vivo applications: First, biocompatible polymer particles can be used to transport known amounts of drug and re lease them in a controlled fashion. Second, particles can be made of materials which bio degrade in living organisms without doing any harm. Third, particles with modified surfaces are able to avoid rapid capture by the reticuloendothelial system and therefore en hance their blood circulation time. Fourth, combining particles with specific molecules may allow organ-directed targeting.

A consolidated and comprehensive reference on ligand-binding assays Ligand-binding assays (LBAs) stand as the cornerstone of support for definition of the pharmaco-kinetics and toxicokinetics of macromolecules, an area of burgeoning interest in the pharmaceutical industry. Yet, outside of the Crystal City Conference proceedings, little guidance has been available for LBA validation, particularly for assays used to support macromolecule drug development. Ligand-Binding Assays: Development, Validation, and Implementation in the Drug Development Arena answers that growing need, serving as a reference text discussing critical aspects of the development, validation, and implementation of ligand-binding assays in the drug development field. Ligand-Binding Assays covers essential topics related to ligand-binding assays, from pharmacokinetic studies, the development of LBAs, assay validation, statistical LBA aspects, and regulatory aspects, to software for LBAs and robotics and other emerging methodologies for LBAs. Highlights include: A general discussion of challenges and proven approaches in the development of ligand-binding assays More detailed examination of characteristics of these assays when applied to support of pharmacokinetic and toxicokinetic studies of compounds at different stages in the discovery or development timeline A concise, but detailed, discussion of validation of ligand-binding assays for macromolecules A practical approach to "fit-for-purpose" validation of assays for biomarkers, those molecules receiving increased attention as potentially demonstrating that the target chosen in discovery is being modulated by the candidate therapeutic, both in nonclinical and clinical studies Written by a team of world-recognized authorities in the field, Ligand-Binding Assays provides key information to a broad range of practitioners, both in the pharmaceutical and allied industries and in related contract research organizations and academic laboratories and, perhaps, even in the field of diagnostics and clinical chemistry.

The development of suitable assays, the integration of appropriate technology, and the effective management of the essential infrastructure are all critical to the success of any high-throughput screening (HTS) endeavor. However, few scientists have the multidisciplinary experience needed to control all aspects of an HTS drug discovery project. A P

A very broad range of professionals are using immunoassay technology daily to analyze genetically engineered (GE) crops and related areas, and many of these professionals are completely new to this technology. There is a great need for users to have a book containing technical and practical guidance, and describing limitations and pitfalls of applying immunoassay in agricultural biotechnology. This book focuses on the application of immunoassays to GE plants and related areas. A group of international experts from government agencies, academics and industries, who have many years of related experience, contribute high quality chapters in their areas of expertise. This book covers topics including principles of immunoassay, antibody engineering in AgBiotech, current technologies (formats, kit development, manufacturing and quality control), method validation, applications in trait discovery and product development, applications in grain products and food processing, applications in environmental monitoring, automation and high throughput, reference materials, data interpretation and source of error, and future perspectives and challenges. In addition, to meet the practical needs for a variety of readers from different backgrounds, methods and protocols are included as well.

The new edition of this widely-used sourcebook details the startlingly array of diagnostic equipment available in the medical laboratory of the nineties, and also covers maintenance and quality assurance for each type of instrument. This book includes 17 completely rewritten chapters and 7 new ones, on nephelometry and turbidimetry, gas chromatography, mass spectrometry, flow cytometry, automated immunoassay systems, automated blood bank systems, and physician's office laboratory instrumentation.

Trace Analysis is a highly practical book which deals with the science rather than the paperwork of quality assurance systems. Produced as part of the UK Valid Analytical Measurement (VAM) initiative, it provides the analyst with a systematic approach across the broad spectrum of trace analysis, offering practical advice and guidance on methodology and techniques. The book is structured to take the analyst step-by-step through the stages of any trace analysis. The approach is general, being broken down only into types of analyte. Additional chapters explain the application of groups of techniques to each analyte type. Each section contains references to published material which will allow the analyst to obtain further information on specific topics. Throughout the book, the analyst is reminded of pitfalls which lead to unreliable results. This new book therefore offers invaluable advice to analysts in all areas and at all levels, providing practical 'expert' advice on methodology. It will prove indispensable as a single, comprehensive bench guide for analysts in university, college and industrial laboratories.

During the last few years, immunoassay has gained tremendous popularity in clinical and research laboratories and has been applied to determine hormone, enzyme, protein, drug, and infectious agents. The aim of this book is to provide clinical laboratory personnel and students with an understanding of the principle of immunoassay and the production of reagents for immunoassay.

Immunoassay development is a multidisciplinary activity involving a wide range of skills possessed by few laboratories. This presentation of tried and tested methods should enable scientists and researchers in the pharmaceutical and related industries to more rapidly and effectively develop immunoassays upon which their work is becoming heavily dep

Immunoassays are among the most powerful and sensitive technologies now available for patient diagnosis and monitoring. This book is an indispensable guide to information on the theory and practice of immunoassays. It discusses the scientific basis of these technologies in a

logical, organized, and heuristic manner and provides protocols for specific assays. The contents of this unique book are balanced among theory, practical issues, quality control, automation, and subspecialty areas, making it ideal for health science students, laboratory scientists, and clinicians. Presents up-to-date information Provides extensive cross-referencing Covers theory and practice in full detail Written by leading authorities

Methods of Therapeutic Drug Monitoring Including Pharmacogenetics, Second Edition, Volume Seven in the Handbook of Analytical Separations series, covers all aspects of drug monitoring, including laboratory work, pharmacokinetic analysis and clinical aspects, thus enabling readers from different fields to understand the whole process of therapeutic drug monitoring and how to avoid common pitfalls. The book contains analytical techniques for the quantification of drugs, along with pharmacogenetic and pharmacogenomic methods. Also included are updates on sample preparation, including dried blood spot technology and microextraction methods. In addition, the book includes new drugs, such as tyrosine kinase inhibitors and the monitoring of immunosuppressant drugs. Presents a unique, interdisciplinary approach that appeals to a wide range of users Written by authors from international labs, providing a global perspective that can be applied in various regulatory environments Features additional therapeutic drugs to reflect the rising number of immunocompromised patients Includes a new mass spectroscopic methods chapter to capture the frequent use in TDM and the improved availability of LC-MS across laboratories

This book combines the contributions from the experts of material science, molecular biology, toxicology bio-organic and bio-inorganic chemistry, toxicologists and environmental and food technology etc. to fathom the full scope of current and future of developments in the area of Nanobiotechnology. Provides brief overview of nanobiotechnology for general readers who are not familiar with the research fields and presents a strong overview of most of the critical areas in field This book can also be used as text book for graduate students as an essential reference material, and as an reading material for general readers having a curiosity in Nanobiotechnology.

An essential training aid and reference guide for laboratorians. Includes easy-to-follow collection and ordering guidelines and diagnostic techniques. Offers extensive discussion and a table to assist physicians with ordering the most appropriate diagnostic tests. Provides extensive information on method selection, clinical relevance, and test menus. Features diagnostic algorithms, summary tables, and identification keys. Presents comprehensive organism information on facing pages. Includes "how-to" tips based on 30 years of the author's benchwork experience Serves as a resource for microbiologists, physicians, medical technologists, public health personnel, teachers, and students.

A guide for librarians and for scientists in the life sciences to the full range of information resources, including those that may contain vital information but are increasingly overshadowed by the glitter of new electronic media. Among the 25 articles are considerations of the contents pages of jo

Contemporary Practice in Clinical Chemistry, Fourth Edition, provides a clear and concise overview of important topics in the field. This new edition is useful for students, residents and fellows in clinical chemistry and pathology, presenting an introduction and overview of the field to assist readers as they in review and prepare for board certification examinations. For new medical technologists, the book provides context for understanding the clinical utility of tests that they perform or use in other areas in the clinical laboratory. For experienced laboratorians, this revision continues to provide an opportunity for exposure to more recent trends and developments in clinical chemistry. Includes enhanced illustration and new and revised color figures Provides improved self-assessment questions and end-of-chapter assessment questions

Many new systems have developed since the publication of Immunoassay Automation: A Practical Guide in 1992. Dr. Chan's updated guide is a supplement to his earlier volume, not a replacement of it. He discussesthe changing clinical laboratory environment and summarizes automated immunoassay systems. He then goes on to describe each system in-depth, including an introduction, a description of the instrumentation, the reagent, and the performance system. Provides a general discussion of the changing environment of testing in the clinical laboratory Offers a summary of automated immunoassay systems Serves as a practical guide to using the following systems: AxSym, Opus Magnum, VIDAS, Radius, ACS 180, Immulite, ACA Plus, Immuno 1, Coas CORE, Access, AIA 1200DX, AutoDELFIA, O1B, Copalis, and Universal solid phase microtiter plate system.

A world list of books in the English language.

Includes all of the information required to produce monoclonal antibodies in the laboratory and to prepare them for use in a multitude of given applications. Production procedures are treated in chronological order, beginning with basic tissue culture techniques, immunization strategies and screening test design, followed by production of hybridoma cell lines and basic antibody characterization, purification and labeling. Each chapter contains explanatory text on each step with comparative analysis of methods where appropriate. All necessary experimental protocols are presented in a self-contained format that is easy to follow in the laboratory. Alternative protocols are provided where relevant; for others not included in full, source references are presented. Surveys the current status of human hybridoma production and antibody engineering using molecular biology techniques.

The fourth edition of The Immunoassay Handbook provides an excellent, thoroughly updated guide to the science, technology and applications of ELISA and other immunoassays, including a wealth of practical advice. It encompasses a wide range of methods and gives an insight into the latest developments and applications in clinical and veterinary practice and in pharmaceutical and life science research. Highly illustrated and clearly written, this award-winning reference work provides an excellent guide to this fast-growing field. Revised and extensively updated, with over 30% new material and 77 chapters, it reveals the underlying common principles and simplifies an abundance of innovation. The Immunoassay Handbook reviews a wide range of topics, now including lateral flow, microsphere multiplex assays, immunohistochemistry, practical ELISA development, assay interferences, pharmaceutical applications, qualitative immunoassays, antibody detection and lab-on-a-chip. This handbook is a must-read for all who use immunoassay as a tool, including clinicians, clinical and veterinary chemists, biochemists, food technologists, environmental scientists, and students and researchers in medicine, immunology and proteomics. It is an essential reference for the immunoassay industry. Provides an excellent revised guide to this commercially highly successful technology in diagnostics and research, from consumer home pregnancy kits to AIDS testing. www.immunoassayhandbook.com is a great resource that we put a lot of effort into. The content is designed to encourage purchases of single chapters or the entire book. David Wild is a healthcare industry veteran, with experience in biotechnology, pharmaceuticals, medical devices and immunodiagnostics, which remains his passion. He worked for Amersham, Eastman-Kodak, Johnson & Johnson, and Bristol-Myers Squibb, and consulted for diagnostics and biotechnology companies. He led research and development programs, design and construction of chemical and biotechnology plants, and integration of acquired companies. Director-level positions included Research and Development, Design Engineering, Operations and Strategy, for billion dollar businesses. He retired from full-time work in 2012 to focus on his role as Editor of The Immunoassay Handbook, and advises on product development, manufacturing and marketing. Provides a unique mix of theory, practical advice and applications, with numerous examples Offers explanations of technologies under development and practical insider tips that are sometimes omitted from scientific papers Includes a comprehensive troubleshooting guide, useful for solving problems and improving assay performancee Provides valuable chapter updates, now available on www.immunoassayhandbook.com

First multi-year cumulation covers six years: 1965-70.

The first single up-to-date source of reference values for the elderly. From a search of the literature, it is evident that reference values are

intermixed with those of earlier ages. The book provides comprehensive data specifically on the elderly. The values were derived from widely diverse but well-defined populations of free-living individuals as well as those in institutions. Up to 175 analytes are covered. Values were determined from body fluids, chiefly blood, plasma, serum, cerebrospinal fluids & urine as well as from organ function tests such as clearance & other commonly used ratios of values. Information is expressed predominantly as percentiles (5, 10, 50, 90, 95) for each age group & presented in graphic & tabular form for ease of reading. 1993, 672 pages, 6 X 9, hardcover, ISBN 0-915274-65-5, $75 (AACC Members $65), Order #623.

Immunodiagnostic tests are analytical methods that use antibodies as reagents whose results are used to aid diagnosis and are widely used in many scientific disciplines and in many different ways. Perhaps the most widespread and obvious use is in clinical applications, but immunodiagnostic tests are also used in other fields such as forensic science and environmental and food analysis. The different types of test range from simple manual methods to fully automated systems with sophisticated integrated detection. Immunodiagnostics: A Practical Approach starts off by explaining the principles and development of immunodiagnostic tests, specifically the use of radioisotopes as tracers. Chapter 2 explains the use of solid-phase supports to bind immunoreagents. Enzymes are widely used as labels in immunoassays and their use with colourimetric, fluorimetric, and chemiluminescent detection systems is described. The use of enzymes as labels reflects the move away from radioisotopes and one of the most powerful non- radioisotpoc prodcedures is the time-resolved fluorescence assay. Enzymes can also be used as a simple method of obtaining high performance from immunodiagnostics and this application is covered later in the book. The next set of techniques to be described are light scattering techniques, which can be used in either simple manual assays or in sophisticated automated procedures. The penultimate chapter describes the principles of automation of immunodiagnostic tests. The last topic to be discussed is that of quality assurance.

This unique reference provides a pragmatic approach to the development of successful commercial immunodiagnostic products based on enzyme immunoessay technology. Presenting both the basic and applied principles, Enzyme Immunoassays gathers information on all aspects of this process, from the initial conceptualization to the introduction of the product to the market.

Drug Monitoring and Clinical Chemistry, the 5th volume in the Handbook of Analytical Separations series, gives an overview about methods to analyse drugs in biological fluids. The most widely used methods to analyse drugs in biological fluids. i.e. chromatographic methods, CE and immunoassays are described in detail. For important drugs, an overview about the methods available and a comparison of the techniques should be given to enable the reader to choose the right method depending on laboratory equipment, staff, the aim of the investigation etc. Other general aspects important for conducting therapeutic drug monitoring or pharmacokinetics studies are also covered, i.e. sample preparation, validation of the analytical methods and pharmacokinetic methods for interpreting the data. Areas where therapeutic drug monitoring is used frequently such as antibiotics, immunosuppressant drugs, antipsychotic and anticancer drugs will be discussed in detail. In addition, the important field of phenotyping and genotyping for therapy optimisation with special focus on real-life applications is also covered. The book contains important information for analyst working on drug analysis in clinical chemistry, hospital pharmacists involved in therapeutic drug monitoring, other pharmacists, chemists or physicians working on pharmacokinetic studies in industry or academia. In contrast to other books in this field, this book provides up-to-date information regarding both methodology and clinical applications. For the applications, only fields are described where therapeutic drug monitoring is used in clinical routine and provides benefit to the patients. Overview of all important field where therapeutic drug monitoring is applied All relevant analytical and computational methods are discussed Written by experts with a lot of practical experience in the field

Concerned with application of special instrumental methods to problems in biology. Describes the use of x-ray crystallography in biochemistry. Reviews the application of both transmission microscopy and scanning probe microscopy to biological problems. Discusses well-developed techniques used primarily in clinical laboratories.

Containing updated and new information on advanced technology - including micro and nanoscale immunoassays - this text provides a mix of practical information coupled with a review of clincal applications and practical examples.

Immunoassay Automation: A Practical Guide describes automation of immunoassay from the practical viewpoint of the clinical laboratory. General introduction and evaluation sections demonstrate principles and practice. A comprehensive selection of available systems are detailed by experts, with a view towards popularity, technical advances, and operational efficiency. This laboratory guide is essential for practitioners in clinical chemistry laboratories, and will have lasting value in the evolution of automated systems. Focuses on automation of immunoassay for the clinical laboratory Emphasizes principles, method evaluation, and the systems approach Aids system selection by evaluation of technical, clinical, operational, and economical parameters Contains complete descriptions by experts on the latest automated immunoassay systems Based upon the editor's well-received workshops on automated immunoassay

Includes, beginning Sept. 15, 1954 (and on the 15th of each month, Sept.-May) a special section: School library journal, ISSN 0000-0035, (called Junior libraries, 1954-May 1961). Also issued separately.