

Book Review

Clinical and forensic applications of capillary electrophoresis

J.R. Petersen, A.A. Mohammad (Eds.); Humana Press Inc., New Jersey, USA, 2001, x + 453 pages, ISBN 0-896-03645-6, US\$ 125.00

The capillary electrophoretic technique has progressed considerably since Hjerten first described it in the 1960s. Capillary electrophoresis (CE) is a highly versatile and sensitive method capable of operating in numerous modes, most commonly used ones include capillary zone electrophoresis (CZE), capillary gel electrophoresis (CGE), capillary isoelectric focusing (CIEF) and capillary isotachopheresis (CITP). Since it is a microtechnique it has the ability to conserve precious samples and the use of hazardous chemicals is limited. It is an inexpensive and practical method for clinical application and has potential for automation. *Clinical and forensic applications of capillary electrophoresis*, put together by a group of clinical investigators, is aimed at giving an overview of the current use of CE in the clinical laboratory.

The book is divided into six sections, the first of which containing a general overview, basic principles and modes of CE. It also gives the overall applications of CE in the clinical laboratory. Section 2 focuses upon the electrophoresis of proteins and includes the potential problems and solutions of applying CE in the separation of proteins. Chapters are devoted to how CE is used in the separation of serum proteins; detection of serum and urine paraproteins, separ-

ating cerebrospinal fluid proteins, lipoprotein and haemoglobin variants. Section 3 is composed of three chapters which cover the use of CE in separating abnormal small molecules such as amino acids, organic acids and steroids for detection of metabolic diseases.

Section 4 contains a single chapter on the use of CE in immunoassay. Section 5 describes potential future uses of CE in the clinical laboratory. It outlines how CE can be used to detect the quantitation of viral load, analyse PCR products for use in DNA typing and its combination with electrospray ionisation mass spectrometry. The final section details how CE can be used together with mass spectrometry, its potential use of applying CE in detecting metal ions and clinical and forensic toxicology.

In conclusion this highly innovative book gives an insight into the potential applications of various modes of CE in clinical and forensic laboratories. It can be used as a basis for developing new methods and improving current ones. The book would be of particular interests to forensics, biochemists, biotechnologists and generally all those interested in capillary electrophoresis. It contains numerous references at the end of each chapter.

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Clinical And Forensic Applications Of Capillary Electrophore

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Clinical And Forensic Applications Of Capillary Electrophore:

Clinical and Forensic Applications of Capillary Electrophoresis John R. Petersen, Amin A. Mohammad, 2001-04-20 Because capillary electrophoresis CE is driving the automation of manual and semi manual techniques conserves precious samples and minimizes the use of hazardous organic chemicals it constitutes a powerful new methodology for the clinical laboratory In Clinical and Forensic Applications of Capillary Electrophoresis John R Petersen and Amin A Mohammad along with a panel of leading basic and clinical investigators review those CE methods that are now replacing many routine serum and blood tests in clinical and forensic laboratories Major areas reviewed include the coating of columns the analysis of serum urine and CSF proteins and paraproteins abnormal hemoglobins and hemoglobin Alc peptides amino and organic acids therapeutic drugs drugs of abuse viral load and short tandem repeats STR The methods discussed include capillary zone micellar electrokinetic capillary gel and nonaqueous electrophoresis The authors show how a variety of detection methods UV visible fluorescence and MS can be used in conjunction with CE to detect a broad array of analytes ranging from serum proteins to PCR products to drugs of forensic importance Innovative and highly practical Clinical and Forensic Applications of Capillary Electrophoresis demonstrates the power and versatility of CE not only to develop new assays but also to markedly simplify today s clinical and forensic laboratory methodology

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Methods of Therapeutic Drug Monitoring Including Pharmacogenetics Georg Hempel, 2019-10-17 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 **Review of** F. Tagliaro, F. Bortolotti, 2002 The scope of this book is to give an overview of the basic technical aspects of capillary electrophoresis CE and to provide more detailed information on its applications to the major analytical fields in clinical biochemistry and forensic science Biomedical Photonics Handbook, 3 Volume Set Tuan Vo-Dinh, 2014-07-29 This handbook presents the most recent technological advances and applications in the areas of biomedical photonics This second edition contains introductory material and covers the state of the art methods and instrumentation for biomedical photonic technologies It integrates interdisciplinary research and development critically needed for scientists engineers manufacturers teachers students and clinical providers to learn about the most recent advances and predicted trends in instrumentation and methods as well as clinical applications in important areas of biomedical photonics Extensive references are provided to enhance further study **Biomedical Photonics Handbook** Tuan Vo-Dinh, 2014-07-29 Shaped by Quantum Theory Technology and the Genomics Revolution The integration of photonics electronics biomaterials and nanotechnology holds great promise for the future of medicine This topic has recently experienced an explosive growth due to the noninvasive or minimally invasive nature and the cost effectiveness of photonic modalities in **Journal of Capillary Electrophoresis** , 2004 **Tietz Textbook of Laboratory Medicine - E-Book** Nader Rifai, 2022-02-03 Use THE definitive reference for laboratory medicine and clinical pathology Tietz Textbook of Laboratory Medicine 7th Edition provides the guidance necessary to select perform and evaluate the results of new and established laboratory tests Comprehensive coverage includes the latest advances in topics such as clinical chemistry genetic metabolic disorders molecular diagnostics hematology and coagulation clinical microbiology transfusion medicine and clinical immunology From a team of expert contributors led by Nader Rifai this reference includes access to wide ranging online resources on Expert Consult featuring the comprehensive product with fully searchable text regular content updates animations podcasts over 1300 clinical case studies lecture series and more Authoritative current content helps you perform tests in a cost effective timely and efficient manner provides expertise in managing clinical laboratory needs and shows how to be responsive to an ever changing environment Current guidelines help you select perform and evaluate the results of new and established laboratory tests Expert internationally recognized chapter authors present guidelines representing different

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Clinical Chemistry Lawrence A. Kaplan, Amadeo J. Pesce, Steven C. Kazmierczak, 2003 This comprehensive up to date readable text acts as a complete clinical chemistry course and professional reference providing detailed specific information on the principles of clinical chemistry in laboratory diagnosis as well as the pathophysiologic changes that occur in disease and affect testing outcomes Explanations of Laboratory Techniques Part 1 lead the reader through various necessary laboratory techniques and practices Chapters on Pathophysiology Part 2 provide descriptions of how specific diseases affect the human body A companion CD ROM packaged with the book features Methods of Analysis a comprehensive Urinalysis Manual and an interactive Study Guide Workbook to reinforce concepts The book's clear writing and comprehensive coverage make it an ideal resource for both students and practitioners Instructor resources are available to qualified adopters contact your sales representative for more information

Electrokinetic Chromatography Ute Pyell, 2006-06-16 This book offers a thorough theoretical description of the method an overview on the current status of the

various forms of electrokinetic capillary chromatography plus a look forward into future developments Focuses on the technique of electrokinetic capillary chromatography and its applications in various areas including pharmaceutical industrial environmental and biological chemistry Features invaluable information put together from experienced researchers in the area First book to discuss this technique in detail Covers a topic that is part of the exploding field of hyphenated techniques Selected international contributors working in research in this area

Capillary Electrophoresis of DNA in Uncrosslinked Polymer Solutions Annelise Emily Barron,1995 **Canadian Society of Forensic Science journal** ,1994

Biochemicals and Reagents , **Annals of Clinical Biochemistry** ,1999 **Encyclopedia of Medical Devices and Instrumentation** John G. Webster,2006-04-07 The articles in The Encyclopedia of Medical Devices and Instrumentation focus on what is currently useful or is likely to be useful in future medicine They answer the question What are the branches of medicine and how does technology assist each of them Articles focus on the practice of medicine that is assisted by devices rather than including for example the use of drugs to treat disease The title is the only resource on the market dealing with the subject in encyclopedic detail Accessible to practitioners with a broad range of backgrounds from students to researchers and physicians Articles cover the latest developments such as nanotechnology fiber optics and signal processing

Scientific Evidence Paul C. Giannelli,2007 **Multivariate Methods in Chromatography** Tibor Cserhati,2008-08-25 A comprehensive compilation and evaluation of the newest results in the field of enumerate evaluation of chromatographic data Aimed at the practicing professional researchers and advanced students working in this area Special emphasis on practical applications While the principles of chromatography and multivariate mathematical statistical methods are discussed separately the book focuses on their interconnection Written by a chromatographer for chromatographers

DNA Purification in Microfluidic Systems for Clinical and Forensic Application Joan Marie Bienvenue,2007

Clinical And Forensic Applications Of Capillary Electrophore: Bestsellers in 2023 The year 2023 has witnessed a remarkable surge in literary brilliance, with numerous captivating novels enthralling the hearts of readers worldwide. Lets delve into the realm of bestselling books, exploring the captivating narratives that have enthralled audiences this year. The Must-Read : Colleen Hoover's "It Ends with Us" This touching tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover skillfully weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can succeed. Clinical And Forensic Applications Of Capillary Electrophore : Taylor Jenkins Reids "The Seven Husbands of Evelyn Hugo" This captivating historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reids compelling storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. Discover the Magic : Delia Owens "Where the Crawdads Sing" This evocative coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens weaves a tale of resilience, survival, and the transformative power of nature, entrancing readers with its evocative prose and mesmerizing setting. These popular novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of engaging stories waiting to be discovered. The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is a brilliant and suspenseful novel that will keep you guessing until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

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