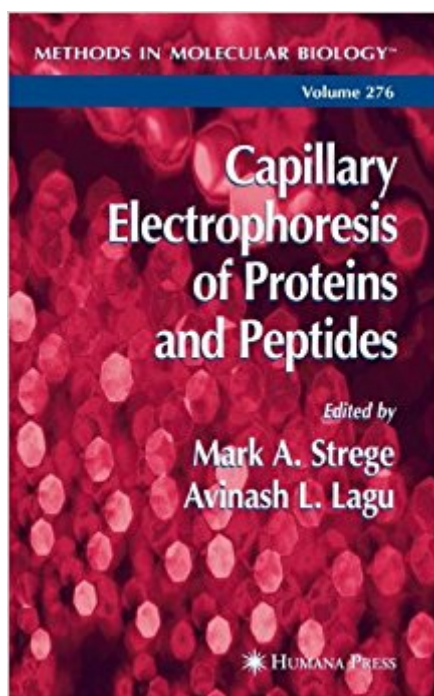


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Capillary Electrophoresis Of Proteins And Peptides (Methods In Molecular Biology)



Synopsis

Throughout the more than 20 years that have followed the beginnings of capillary electrophoresis (CE), its application to the analysis of proteins and peptides has continued to be reliable, versatile, and productive. Over time, CE has matured to become a superb complement to HPLC, and in many cases has also evolved as an automated and quantitative replacement for conventional slab gel electrophoresis methods such as SDS-PAGE and isoelectric focusing. Within Capillary Electrophoresis of Proteins and Peptides, we have assembled contributions from researchers who are applying state-of-the-art CE for protein and peptide analysis, including topics that we believe are of great potential both in the present and for the future. In comparison to traditional separation methods, CE represents a miniaturized analysis technique (especially in its microchip-based format) that is highly dependent upon the basic fundamentals of effective sample recovery and high sensitivity detection. With these issues in mind, Chapters 1–4 describe recently developed approaches for both capillary coatings and analyte detection via laser-induced fluorescence. Since the discipline of biotechnology has established itself as a primary platform for the application of CE to the analysis of proteins and peptides, Chapters 5–7 demonstrate a variety of examples of the specific techniques that have been applied for the development of biopharmaceuticals and their commercialization. The methods covered here include also the analysis of oligosaccharides from glycoproteins.

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Customer Reviews

Capillary electrophoresis (CE) is one of the premier methods for the rapid analysis of pharmaceutical proteins and peptides, and thus now even more important with the sequencing of the human genome and the subsequent advent of proteomics. In *Capillary Electrophoresis of Proteins and Peptides*, leading academic scientists and expert laboratorians working in the pharmaceutical industry describe their best CE techniques in step-by-step detail for easy reproduction. The authors present cutting-edge techniques for both capillary coatings and analytical detection via laser-induced fluorescence, for the development and commercialization of biopharmaceuticals, and for affinity capillary electrophoresis in the evaluation of protein binding, including the use of protein charge ladders. Additional chapters discuss CE and capillary isoelectric focusing, combined with electrospray mass spectrometry detection, for performing proteomic studies. Areas of special interest covered include proteomic applications, as well as applications in the field of protein-ligand binding. The protocols follow the successful *Methods in Molecular Biology* series format, each offering step-by-step laboratory instructions, an introduction outlining the principle behind the technique, lists of equipment and reagents, and tips on troubleshooting and avoiding known pitfalls. Comprehensive and state-of-the-art, *Capillary Electrophoresis of Proteins and Peptides* will prove essential to both new and experienced investigators carrying out significant protein and peptide studies in biotechnology, drug discovery, and pharmaceutical research and development.

Obviously most of us will be introduced to this subject through a vendor and an expensive "turn-key" system, but the editors and contributors to this volume did an excellent job of summarizing a variety of approaches to the theory and applications of CE. This field is obviously still ahead of it's time, mostly academic, and a great topic for graduate research. Certainly many applications have been replaced with more sophisticated techniques like mass spectrometry, but for those with even minimal time, it's great to consider separation inside of a very small tube by several forces simultaneously, very quickly and with extremely high resolution. Also, the physical and chemical environment lend themselves to experimental designs involving many kinds of interactions on a chemical level (such as complexation with ligands, even including colorimetric applications which might not be as simple with ordinary liquid chromatography) over an extremely fast time scale. This may be a nice book that is only appreciated after another decade passes and industry has actually hired enough innovative scientists that are daring enough to try some experiments on their own time and force some necessary cultural changes.

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