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3.2.6.1 Chromatofocusing to Reversed Phase; 3.2.6.2 Ion-Exchange-Reversed-Phase Liquid Chromatography; 3.2.7 Three-Dimensional Liquid Chromatography; 3.2.8 LC Image Analysis Requirement; 3.2.9 Mass Spectrometry for LC; 3.2.9.1 MALDI-TOF MS; 3.2.9.2 ESI-MS/MS; 3.3 Conclusions; 4 HPLC in Protein Discovery; 4.1 Introduction; 4.2 LC-Based Approaches in Peptide Mass Mapping; 4.3 LC-Based Approaches in Protein Mapping; 4.4 Orthogonal 2D HPLC Separations; 4.5 Conclusion; 5 IEF Analysis of Peptides for Biomarkers Discovery; 5.1 Introduction; 5.2 Background; 5.2.1 Isoelectric Focusing; 5.2.2 Shotgun Proteomics; 5.2.3 Shotgun IEF; 5.3 Shotgun IEF Workflow; 5.4 Applications; 5.5 Discussion and Outlook; 6 Capillary Electrophoretic Separations for Clinical Proteomics; 6.1 Introduction; 6.2 (Single-Dimension) Capillary Electrophoretic Separation; 6.3 Capillary Electrophoresis-Based Multidimensional Separations; 6.3.1 Capillary Liquid Chromatography-Capillary Electrophoresis; 6.3.2 Capillary Electrophoresis-Capillary Electrophoresis; 6.3.3 Capillary Electrophoresis-Liquid Chromatography; 6.3.3.1 Characterization of Human Saliva Proteome; 6.3.3.2 Targeted Tissue Proteomics; 6.4 Conclusions; 7 Quantitative Proteomics Using Nano-LC with High Accuracy Mass Spectrometry; 7.1 Introduction; 7.2 Fundamentals of a High Mass Accuracy-Based LC-MS Approach; 7.3 Nano-LC-MS for Enhanced Sensitivity and Dynamic Range Coverage; 7.4 Further Developments for Increasing Proteomic Throughput; 7.5 Obtaining More Robust Quantitative Proteomic Measurements; 7.6 Summary and Perspective; 8 Antibody Microarrays for Protein and Glycan Detection; 8.1 Introduction; 8.2 Antibody Preparation and Microarray Production; 8.3 Sandwich Assays with Fluorescence Detection; 8.4 Antibody Microarrays with Lectin Detection

Sommario/riassunto

Unparalleled in its scope and depth, this book brings together proteomic approaches in diagnosis and treatment from all clinical fields, including clinical toxicology. The result is a new discipline in molecular medicine that will revolutionize the treatment and prevention of cancer, stroke and other severe diseases. Following an overview of clinical proteomics, the authors look at the technologies available, before moving on to cancer, cardiopulmonary disease, diabetes and stroke. A whole section is devoted to toxicity and the work is rounded off with a discussion of the future of clinical