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Classificazione	UTF
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Soggetti	Analytical chemistry Biochemistry Spectrum analysis Mass spectrometry Separation (Technology) Diagnosis Bioanalytical Chemistry Spectroscopy Mass Spectrometry Separation Science
Lingua di pubblicazione	Inglese
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Nota di contenuto	What is bioanalytical chemistry? Scientific opportunities with immediate impact -- Role of bioanalytical chemistry in the 21st century -- Sampling and sample preparation in bioanalysis -- UV-VIS absorption and fluorescence in bioanalysis -- High-resolution techniques based on atomic and emission spectrometry applied to bioanalytical purposes -- Vibrational spectroscopy in bioanalysis -- Biological systems investigated by smal-angle X-ray scattering -- High resolution optical fluorescence microscopy for cell biology studies -- Nuclear magnetic resonance spectroscopy in analyses of biological samples -- SPR sensors: From configurations to bioanalytical applications -- Introduction to electroanalysis -- Amperometric detection for bioanalysis -- Potentiometric biosensors -- Electrochemical methods

applied for bioanalysis. Differential pulse voltammetry and square wave voltammetry -- Impedimetric immunosensors for clinical practices: Focus on point-of-care diagnostics -- Organic electrochemical transistors in bioanalytical chemistry -- Quartz crystal microbalance in bioanalysis -- Scanning electrochemical microscopy (SECM): Fundamentals and applications -- Modified electrodes surface with inorganic oxides and conducting polymers -- The role of gas chromatography in bioanalysis -- Liquid chromatography in bioanalysis -- The role of capillary electromigration separation techniques in bioanalysis -- Introduction to bioanalytical mass spectrometry -- Microchip-based devices for bioanalytical applications -- Microarrays application in life sciences – The beginning of the revolution -- Chemometrics in bioanalytical chemistry -- Recent advances and future trends in bioanalytical chemistry.

Sommario/riassunto

This textbook covers the main tools and techniques used in bioanalysis, provides an overview of their principles, and offers several examples of their application and future trends in diagnosis. Chapters from expert contributors explore the role of bioanalysis in different areas such as biochemistry, physiology, forensics, and clinical diagnosis, including topics from sampling/sample preparation, chemometrics in bioanalysis to the latest techniques used in the field. Particular attention is given to the recent advances in the application of mass spectrometry, NMR, electrochemical methods and separation techniques in bioanalysis. Readers will also find more about the application of microchip-based devices and analytical microarrays. This textbook will appeal to graduate/advanced undergraduate students in Chemistry, Biology, Biochemistry, Pharmacy, and Chemical Engineering. It is also a useful resource for researchers and professionals working in the fields of biomedicine and veterinary sciences, with clear explanations and examples of how the different bioanalytical devices are applied for clinical diagnosis.