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Titolo	Biomedical vibrational spectroscopy [[electronic resource] /] / edited by Peter Lasch, Janina Kneipp
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Altri autori (Persone)	KneippJanina LaschPeter
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Soggetti	Diagnostic imaging Infrared spectroscopy Raman spectroscopy
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Formato	Materiale a stampa
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	BIOMEDICAL VIBRATIONAL SPECTROSCOPY; CONTENTS; Preface; Contributors; 1 VIBRATIONAL SPECTROSCOPY IN MICROBIOLOGY AND MEDICAL DIAGNOSTICS; 1.1 Vibrational Spectra in Biomedicine Provide Fingerprint-like Signatures of Biological Structures; 1.2 Different Technical Options to Obtain the Spectral Information; 1.3 The Need for and Benefit from Data Evaluation; 1.4 Perspectives of Biomedical Vibrational Spectroscopy; 2 BIOMEDICAL VIBRATIONAL SPECTROSCOPY - TECHNICAL ADVANCES; 2.1 Introduction; 2.2 Measurement Techniques for Clinical Chemistry; 2.3 Measurement Techniques for Pathology 2.4 Measurement Techniques for In Vivo Spectroscopy2.5 Concluding Remarks; Acknowledgments; References; 3 BIOMEDICAL APPLICATIONS OF INFRARED MICROSPECTROSCOPY AND IMAGING BY VARIOUS MEANS; 3.1 Introduction; 3.2 Specimen Sources, Experimental Schemes, and Optical Substrates; 3.3 Applications; 3.4 Instrumental Means of Biomedical IMS; 3.5 Comment; Acknowledgments; Acronyms and

Trademarks; References; 4 INFRARED SPECTROSCOPY OF BIOFLUIDS IN CLINICAL CHEMISTRY AND MEDICAL DIAGNOSTICS; 4.1 Introduction; 4.2 Vibrational Spectroscopy of Biofluids
4.3 Quantification (Regression) and Diagnostic (Classification) Approaches4.4 Quantitative Biofluid Analysis; 4.5 Diagnostic Biofluid Tests; 4.6 Veterinary Applications; 4.7 Microfluidics and IR Spectroscopy of Biofluids; 4.8 Concluding Remarks; References; 5 RAMAN SPECTROSCOPY OF BIOFLUIDS; 5.1 Introduction; 5.2 Background Fluorescence; 5.3 The Putative Drawback of a Low Signal-to-Noise-Ratio; 5.4 Spectroscopy of Blood and Its Derivates; 5.5 In Vitro Raman Spectroscopy of Serum for Laboratory Diagnostics: A Case Study; 5.6 Raman Spectroscopy of Body Fluids In Vivo
5.7 Raman Spectroscopy of Other Body Fluids5.8 Summary; Acknowledgments; References; 6 VIBRATIONAL MICROSPECTROSCOPY OF CELLS AND TISSUES; 6.1 Introduction; 6.2 Infrared Histopathology: IR Microspectroscopic Mapping of Tissues; 6.3 Vibrational Cytology: IR and Raman Spectroscopy of Eukaryotic Cells; 6.4 Concluding Remarks; Acknowledgments; References; 7 RESONANCE RAMAN MICROSPECTROSCOPY AND IMAGING OF HEMOPROTEINS IN SINGLE LEUKOCYTES; 7.1 Hemoproteins; 7.2 Raman Microspectroscopy; 7.3 Outline of This Chapter; 7.4 Instrumentation and Spectral Data Analysis
7.5 Resonance Raman Microspectroscopy on Neutrophilic Granulocytes7.6 Resonance Raman Microscopy on Neutrophilic Granulocytes; 7.7 Photobleaching and Light-Induced Cell Damage in Resonance Raman Microspectroscopy; 7.8 Concluding Remarks; Acknowledgments; References; 8 RESONANT RAMAN SCATTERING OF HEME MOLECULES IN CELLS AND IN THE SOLID STATE; 8.1 Introduction; 8.2 Electronic Structure of Heme Moieties; 8.3 Resonance Raman Spectroscopy; 8.4 Resonance Raman Spectroscopy of Hemes in Cells and the Solid State
8.5 Resonance Raman of Heme Derivatives Using Near-Infrared Excitation in the Solid State

Sommario/riassunto

This comprehensive overview of biomedical applications of vibrational spectroscopy focuses on methodologies that are most relevant to biodiagnostics. After a few introductory chapters that summarize the current status of the field, the reference covers current spectroscopic applications; new spectroscopic directions; and study design and the analysis of vibrational spectral fingerprints from complex biological and clinical samples . With chapters contributed by leading international experts, Biomedical Vibrational Spectroscopy is a core resource.

2. Record Nr. UNINA9910808442803321

Titolo	Big data and analysis for infectious disease research, operations, and policy : proceedings of a workshop / / National Academies of Sciences, Engineering, and Medicine (U.S.)
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ISBN	0-309-45012-8 0-309-45014-4
Descrizione fisica	1 online resource (82 pages)
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Soggetti	Communicable diseases - Research Big data - Security measures Conference papers and proceedings.
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Nota di contenuto	Introduction -- Big data and global health -- Opportunities and challenges for big data and analytics -- Case studies in big data and analysis -- Closing remarks and general discussion -- References -- Appendix A: Workshop agenda -- Appendix B: Biographical sketches of workshop speakers -- Appendix C: Statement of task.
Sommario/riassunto	"With the amount of data in the world exploding, big data could generate significant value in the field of infectious disease. The increased use of social media provides an opportunity to improve public health surveillance systems and to develop predictive models. Advances in machine learning and crowdsourcing may also offer the possibility to gather information about disease dynamics, such as contact patterns and the impact of the social environment. New, rapid, point-of-care diagnostics may make it possible to capture not only diagnostic information but also other potentially epidemiologically relevant information in real time. With a wide range of data available for analysis, decision-making and policy-making processes could be improved. While there are many opportunities for big data to be used

for infectious disease research, operations, and policy, many challenges remain before it is possible to capture the full potential of big data. In order to explore some of the opportunities and issues associated with the scientific, policy, and operational aspects of big data in relation to microbial threats and public health, the National Academies of Sciences, Engineering, and Medicine convened a workshop in May 2016. Participants discussed a range of topics including preventing, detecting, and responding to infectious disease threats using big data and related analytics; varieties of data (including demographic, geospatial, behavioral, syndromic, and laboratory) and their broader applications; means to improve their collection, processing, utility, and validation; and approaches that can be learned from other sectors to inform big data strategies for infectious disease research, operations, and policy. This publication summarizes the presentations and discussions from the workshop"--Publisher's description.