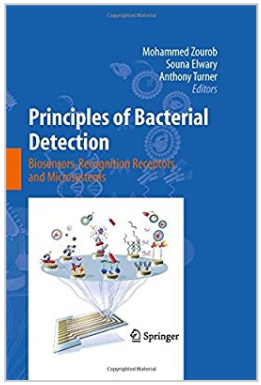

Principles of Bacterial Detection: Biosensors, Recognition Receptors and Microsystems

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Principles of Bacterial Detection: Biosensors, Recognition Receptors and Microsystems will cover the up-to-date biosensor technologies used for the detection of bacteria. Written by the world's most renowned and learned scientists each in their own area of expertise, **Principles of Bacterial Detection: Biosensors, Recognition Receptors and Microsystems** is the first title to cover this expanding research field.

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Editorial Review

From the Back Cover

Principles of Bacterial Detection: Biosensors, Recognition Receptors and Microsystems presents a significant and up-to-date review of various integrated approaches for bacterial detection. Distinguished engineers and scientists from key institutions worldwide have contributed chapters that provide a deep analysis of their particular subject; at the same time, each topic is framed within the context of this integrated approach. This work is a comprehensive approach to bacterial detection requiring a thorough knowledge of the subject and an effective integration of other disciplines in order to appropriately convey the state-of-the-art fundamentals and applications of the involved disciplines.

The book consists of four parts:

The first part provides an introduction to pathogenic bacteria and sampling techniques and an overview of the rapid microbiological methods.

The second part describes the different transducers used for the detection of bacteria. It covers the theory behind each technique and provides a state-of-the-art review of all the new technologies used for the detection of bacteria in detail. Strategies and future prospects are suggested at the end of each chapter for developing future technologies to achieve a better sensitivity and swifter detection of bacteria.

The third part gives an account of the different recognition receptors used in the various methods for the detection of bacteria. It describes in detail the use of immunoassays, nucleic acids, oligonucleotide microarrays, carbohydrates, aptamers, protein microarrays, bacteriophages, phage displays and molecular imprinted polymers as recognition elements.

The fourth part covers the microsystems used for detection/identification and bacterial manipulation such as bacteria lysis and PCR in microfluidics, dielectrophoresis, ultrasonic manipulation techniques and mass spectrometry techniques.

Students and researchers who need a solid foundation or reference and practitioners interested in discovering more about the state-of-the-art methods of bacterial detection will find this book invaluable. This book is directed at academics and undergraduate and postgraduate students who work in areas related to bacterial detection. It may also serve as an important reference for professionals working in different fields, including biomedical science, physical science, microsystems engineering, nanotechnology, veterinary science, food quality assurance, bioterrorism and security as well as health surveillance.

Users Review

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