1. Record Nr. UNINA9910132281803321

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| Titolo | Modern techniques for pathogen detection / / edited by Jurgen Popp and Michael Bauer |
| Pubbl/distr/stampa | Weinheim, Germany : , : Wiley Blackwell, , 2015<br>©2015 |
| ISBN | 3-527-68798-X<br>3-527-68797-1<br>3-527-68799-8 |
| Descrizione fisica | 1 online resource (353 p.) |
| Disciplina | 616.9 |
| Soggetti | Pathogenic microorganisms - Detection |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references at the end of each chapters and index. |
| Nota di contenuto | Cover; Contents; Preface; List of Contributors; Chapter 1 Unmet Medical Needs in Life-Threatening Infections - Caring for the Critically Ill; 1.1 Life Threatening Infections and Sepsis - Defining the Problem; 1.2 Sepsis as a ""Hidden Healthcare Disaster""; 1.3 Microorganisms and Types of Infection Triggering Sepsis; 1.4 Emerging Problems Related to Resistance in Bacterial Infections; 1.5 The Role of Fungi and Viruses; 1.6 The Need for New Approaches in Diagnostics of Life-Threatening Infection and Sepsis<br>1.7 Rapid and Sensitive Culture-Independent Strategies to Identify Blood Stream Infection1.8 Beyond Infection - Profiling the Immune Response of the Septic Host; 1.9 Host Factors Contributing to Pathogenesis of Sepsis; References; Chapter 2 Identification Methods - An Overview; 2.1 Taxonomy of Pathogenic Organisms; 2.2 Microscopic Methods; 2.2.1 Stains; 2.2.2 Autofluorescence; 2.2.3 Immunofluorescence; 2.2.4 In Situ Hybridization; 2.2.5 Dark-Field Microscopy; 2.3 Culture-Based Methods; 2.3.1 Blood Culture; 2.3.2 Automated Differentiation Systems; 2.3.3 API System; 2.3.4 Selective Agar<br>2.3.5 Susceptibility Testing2.3.6 Other Methods; 2.4 Nucleic Acid-Based Techniques; 2.4.1 PCR; 2.4.1.1 Real-Time PCR; 2.4.1.2 |

Multiplex-PCR; 2.4.1.3 RAPD and rep-PCR; 2.4.1.4 Microarrays; 2.4.1.5 RFLP; 2.4.2 Sequencing; 2.4.2.1 Ribosomal RNA Genes; 2.4.2.2 MLST; 2.4.2.3 NG Sequencing; 2.5 Serology; 2.5.1 Antigen-Antibody-Based Methods; 2.5.1.1 Agglutination; 2.5.1.2 Immunodiffusion; 2.5.1.3 Quantitative Immunoassays; 2.5.2 Automated Immunoassays; 2.5.3 Applications of Serological Test; 2.5.3.1 Types of Human Antibodies and What They Indicate?
2.5.3.2 Validity of Antibodies against Opportunistic Species2.5.3.3 Specificity of Fungal Antigens; 2.5.3.4 Specific Urine Antigen Tests; 2.5.4 Biomarkers; 2.6 Conclusions and Perspectives; References; Chapter 3 Nucleic Acid Amplification Techniques; 3.1 Introduction; 3.2 The Basic PCR Protocol; 3.3 Primer Design; 3.3.1 Specific versus Broad-Range Primers and the Fate of False Targeting; 3.4 Modified End-Point PCR Protocols; 3.5 Non-PCR NAT: Isothermal Amplification Protocols; 3.6 Quantitative PCR; 3.6.1 Quantification in qPCR; 3.6.2 Melting Curve Analysis (MCA)
3.7 Controls, Probing, and General Aspects of Result Interpretation3.7.1 Strategies in Amplicon Verification; 3.7.1.1 (DNA) Microarray; 3.7.1.2 Flow Cytometry; 3.7.1.3 Mass Spectrometry; 3.7.2 PCR Inhibitors; 3.8 Preanalytics; 3.8.1 Sample Volume; 3.8.2 Cell Lysis; 3.8.3 Nucleic Acid Isolation and Preparation; 3.9 Fields of PCR Application; 3.9.1 Sequencing; 3.9.1.1 Pyrosequencing; 3.9.2 Typing and Epidemiology; 3.9.3 Pathogen Detection in Complex Clinical Samples; 3.9.4 General Aspects of Result Interpretation; 3.9.4.1 Sensitivity and Specificity; 3.9.4.2 NAT versus Culture
3.9.4.3 The Fate of Antibiotic Resistances Detection

Sommario/riassunto

This outstanding overview sets a new standard for a methods book on pathogen detection. The first chapter provides an outline of currently used routine methods, including their background, strengths and weaknesses, as well as comparing them to newer methods. The following chapters then cover novel methods already in wide use and which are still more experimental for routine purposes.<br>An invaluable resource for all medical laboratories and clinical institutions dealing with infectious diseases.<br>