

PCR Detection of Microbial Pathogens

Mark Wilks, Editor

Humana Press, New York,
New York, USA, 2012

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This book covers general challenges of introducing primarily non-commercial PCRs and specific procedures into the laboratory, including sample treatment, extraction protocols, quality and quality assurance, and internal and external laboratory processes. The chapters on specific pathogens illustrate principles that could be applied in many diagnostic laboratories.

The editor's preface to this book is helpful in framing approaches to PCR pathogen detection methods. The focus is primarily on detection of bacterial pathogens, with the exception of *Pneumocystis* spp., and the case is made for using less expensive noncommercial strategies that enable more flexibility and customization. The book addresses the many parameters of nucleic acid preparation, buffer choice, primer construction, inhibition, cycling parameters, detection, and statistical analysis.

The ≈300 pages of text are divided in 21 chapters, of which the first 3 cover concepts of importance to all clinical laboratories using PCRs. The third chapter, which covers quality and quality assurance, is particularly comprehensive in its treatment of internal and external laboratory process and PCR controls. This chapter covers a variety of concepts, from Westgard rules for investigations of systematic and other errors, to proficiency testing, and includes many useful tables. Of importance to clinical laboratories and epidemiologic investigations alike, the authors make an essential point that up to 75% of errors in the testing

process can be attributed to improper sample collection and transport of specimens, areas that often get less attention than assay quality control. The fourth chapter covers preanalytical and extraction protocols specifically for molecular detection of pathogens in whole blood, which is a particularly challenging specimen.

The remaining chapters cover a mixture of mostly real-time and some conventional PCRs targeting specific pathogens (sometimes by multiplex approaches), and 1 chapter describes a loop-mediated isothermal amplification method for detection of *Campylobacter* spp. The pathogens and techniques covered represent a good survey of approaches and vendor equipment choices. The quality of the chapters in this book varies widely, and some repetitive information is included. Overall, this book would be of interest to those involved in PCR principles and laboratory quality control. It contains examples of successful noncommercial diagnostic PCRs. If your pathogen(s) of interest are covered, it is an added bonus.

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Real-time PCR in Food Science: Current Technology and Applications

David Rodríguez-Lázaro, editor

Caister Academic Press/
Horizon Scientific Press,
Poole, United Kingdom, 2013

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Pages: 302; Price: US \$319.00

This 302-page book describes methodologies and applications of real-time PCR in food science. In addition to detection of enteric pathogens, including foodborne and waterborne parasites, a section on food quality provides information on the use of this method to detect genetically modified organisms, allergens, and animal or plant species in food products. This book will be valuable to food scientists with an interest in real-time PCR, also known as quantitative PCR or qPCR, (not to be confused with reverse transcription PCR, or RT-PCR). This book provides a comprehensive overview of conventional and qPCR methods used to detect pathogens in contaminated foods, as well as their use in analysis of food integrity, including the detection of genetically modified organisms, allergens, and authentication of biological species in labeled foods. The book is divided into 3 sections.

The first section, comprising 4 chapters, provides a detailed examination of basic methodologies of qPCR. The inclusion of an introduction to these methodologies, sample preparations, assay design, and the role of controls is beneficial for new scientists and experienced readers. As a bonus, color plates are included.

The second and third sections span 14 chapters. Each of the chapters covering detection of enteric pathogens is organized similarly, which allows the reader to quickly

compare and locate information. Bacterial pathogens are discussed in separate chapters; viruses and foodborne and waterborne parasitic pathogens are covered in 2 comprehensive chapters. Each chapter includes background information about organism types, tables of published assays, current methods, the use of controls, approaches to determine limits of detection, and current challenges. A compelling chapter on standardization of qPCR methods compares the International Organization for Standardization and the European Organization for Standardization platforms, giving the reader a glimpse into international processes for creating standards.

Rounding out this text are chapters focused on the use of qPCR to detect allergens, gluten, and genetically modified organisms and chapters addressing authentication of animal or plant species present in labeled foods. This book provides an excellent, detailed guide for anyone interested in development and use of qPCR platforms for food safety, quality, and microbiology.

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Public Health in East and Southeast Asia: Challenges and Opportunities in the Twenty-First Century

Roger Detels, Sheena G. Sullivan, Chorh Chuan Tan, editors

**University of California Press, Berkeley, California, USA, 2012
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Pages: 360; Price: US \$44.95**

Writing a book about public health in East and Southeast Asia is a daunting challenge. Comprising Mongolia to the north and Indonesia to the south, with all the countries in between, East and Southeast Asia are home to >2 billion persons and include the full economic and development spectrum of nations in the 21st century. Because of this regional complexity, providing a cohesive, comprehensive overview of public health issues, which involves making generalizations while trying to provide the right level of detail and contrast, is an ambitious goal. However, it was not completely met by this text.

The book addresses such topics as the area's changing societal norms and lifestyles, emerging infectious and chronic diseases, nutrition, tobacco use, injuries, occupational health, health services, and globalization. Its strengths include the chapters on

chronic diseases, tobacco, and injuries, which provide a good general overview of these issues in the region, with a detailed look at mental health issues. The chapters on infectious diseases are sparse in detail, however, and lack in-depth discussions of the context that places Asia at such high risk for becoming the source of pandemics.

A rather confusing organization places a description of the control of emerging and other communicable diseases in a separate section of the book (the health services section). However, besides a few redundancies in the chapters, thought-provoking discussions on economics are provided. Data from specific countries are presented somewhat randomly throughout the chapters, sometimes resulting in fragmented discussions.

This volume may be a useful addition to those studying public health issues in East and Southeast Asia, especially its sections on chronic diseases, injuries, and tobacco. Nonetheless, this book should be supplemented by more detailed texts for in-depth studies of individual countries or disease states.

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