

Contents

Part I Methods

1 Automated Blood Cultures.....	3
Xiang Y. Han	
2 Breath Tests for Detection of <i>Helicobacter pylori</i> and <i>Aspergillus fumigatus</i>	13
Sihe Wang, Wan-Ming Zhang, and Edmunds Reineks	
3 Rapid Antigen Tests	31
Sheldon Campbell and Marie L. Landry	
4 Antibody Detection: Principles and Applications	53
Yun F. (Wayne) Wang and Miwako Kobayashi	
5 Cytometry-Based Antimicrobial Resistance Techniques.....	75
Vishnu Chaturvedi	
6 Biochemical Profile-Based Microbial Identification Systems	87
Nyasha O. Bullock and Jaber Aslanzadeh	
7 Infectious Disease Biomarkers: Non-Antibody-Based Host Responses	123
Audrey N. Schuetz	
8 Functional Assessment of Microbial and Viral Infections by Real-Time Cellular Analysis System	151
Xiao Xu and Min Zheng	
9 Cellular Fatty Acid-Based Microbial Identification and Antimicrobial Susceptibility Testing	177
Nicole Parrish and Stefan Riedel	

10	MALDI-TOF Mass Spectrometry-Based Microbial Identification	187
	Alexander Mellmann and Johannes Muthing	
11	Nucleic Acid Extraction Techniques	209
	Jeong Hwan Shin	
12	Nonamplified Probe-Based Microbial Detection and Identification	227
	Fann Wu, Tao Hong, and Phyllis Della-Latta	
13	Molecular Typing Techniques: State of the Art	239
	Richard V. Goering	
14	An Introduction to In Vitro Nucleic Acid Amplification Techniques	263
	Haijing Li and Yi-Wei Tang	
15	PCR and Its Variations	273
	Michael Loeffelholz and Jianli Dong	
16	Non-PCR Target Amplification Techniques	293
	Rosemary C. She and Elizabeth M. Marlowe	
17	Probe Amplification Technologies	307
	Fei Ye, Miao Cui, Tao Feng, Ivy Lee, Josephine Wu, Bingjiao Yin, and David Zhang	
18	Signal Amplification Technologies	327
	Ted E. Schutzbank	
19	Real-Time Nucleic Acid Quantification	345
	Nima Mosammaparast and Alexander J. McAdam	
20	An Introduction to Amplification–Production–Detection Techniques	355
	Criziel Quinn, Charles W. Stratton, and Yi-Wei Tang	
21	Gel Electrophoresis, Southern Blot, and Colorimetric Microwell Plate-Based System	367
	Jie He, Michael J. Loeffelholz, and Jiang Fan	
22	Direct Nucleotide Sequencing for Amplification Product Identification	383
	Tao Hong	
23	Microarray-Based Amplification Product Detection and Identification	397
	Joy D. Van Nostrand, Terry J. Gentry, and Jizhong Zhou	
24	Real-Time Detection of Amplification Products Through Fluorescence Quenching or Energy Transfer	413
	Shihai Huang	

25 Microbial Identification by PCR/Electrospray Ionization-Mass Spectrometry	441
David Metzgar, Rangarajan Sampath, Lawrence B. Blyn, Christian Massire, and David J. Ecker	
26 Amplification Product Inactivation	467
Susan Sefers, Charles W. Stratton, and Yi-Wei Tang	

Part II Applications

27 Bacterial Identification Based on Universal Gene Amplification and Sequencing	483
Susanna K.P. Lau, Jade L.L. Teng, and Patrick C.Y. Woo	
28 Molecular Techniques for Blood and Blood Product Screening	511
Yuan Hu	
29 Molecular Diagnostics of Sexually Transmitted Diseases.....	535
Angus C.T. Lo and Kai Man Kam	
30 Advances in the Diagnosis of <i>Mycobacterium tuberculosis</i> and Detection of Drug Resistance.....	557
Abdullah Kilic	
31 Rapid Screening and Identification of Methicillin-Resistant <i>Staphylococcus aureus</i>	587
Patrice Francois and Jacques Schrenzel	
32 Advanced Methods for Detection of Foodborne Pathogens.....	605
Heather Harbottle and Michael Pendrak	
33 Technical and Clinical Niches for Point of Care Molecular Devices	619
Ellen Jo Baron and Sheldon Campbell	
34 Multiplex PCR in Molecular Differential Diagnosis of Microbial Infections: Methods, Utility, and Platforms	627
Jian Han	
35 Technical Advances in Veterinary Diagnostic Microbiology.....	647
Dongyou Liu	
36 Recent Advances in Veterinary Diagnostic Virology: Report from a Collaborating Centre of the World Organization for Animal Health (OIE)	661
Sándor Belák and Lihong Liu	
37 Deep Sequencing: Technical Advances and Clinical Microbiology Applications	679
Chunlin Wang	

38	Detection of Viral RNA Splicing in Diagnostic Virology	693
	Vladimir Majerciak and Zhi-Ming Zheng	
39	Application of Microarrays for Laboratory Detection and Identification of Medically Important Fungi	749
	Tsung Chain Chang	
40	Laboratory Technical Advances in the Diagnosis of <i>Clostridium difficile</i>	769
	Karen C. Carroll	
41	Molecular Diagnosis of HIV-1 Infections: Current State of the Art.....	785
	Yi-Wei Tang	
42	Bead-Based Suspension Arrays for the Detection and Identification of Respiratory Viruses.....	813
	Sherry A. Dunbar	
43	Molecular Diagnosis and Monitoring of Human Papillomavirus Infections.....	835
	Bruce K. Patterson	
44	Molecular Niches for the Laboratory Diagnosis of Sepsis	845
	Donna M. Wolk	
45	Advanced Pathology Techniques for Detecting Emerging Infectious Disease Pathogens	873
	Wun-Ju Shieh and Sherif R. Zaki	
46	Diagnosis and Assessment of Microbial Infections with Host and Microbial microRNA Profiles.....	891
	Lunbiao Cui, Charles W. Stratton, and Yi-Wei Tang	
47	Interpretation and Relevance of Advanced Technique Results	911
	Charles W. Stratton and Yi-Wei Tang	
	Index.....	937

Advanced Techniques in Diagnostic Microbiology

(Eds.) Y.-W. Tang; C.W. Stratton

2013, X, 957 p. 132 illus., 79 in color., Hardcover

ISBN: 978-1-4614-3969-1