During the past decade we have witnessed a mushrooming of papers in the area of medical mycology; detailing major advances in areas such as genomics, molecular and cellular biology, molecular epidemiology, immune response and vaccine development, and strategies to combat infections in humans. This sheer volume of information makes it extremely difficult for the busy research scientist and/or teacher of medical mycology to keep abreast of all the latest advances. This book, together with its companion volume Pathogenic Fungi: Host Interactions and Emerging Strategies for Control, brings together expert international authors who critically review current topics, and through the provision of extensive reference sections positively encourage readers to pursue the subject in greater detail.

The book is divided into two sections: Fungal Dimorphism and Pathogenicity and New Taxonomic Tools. The first section focuses on morphogenesis, the cell cycle, and the cell wall of human pathogens. These play a major role in elucidating fungal relationships, both with the environment and with the host. Experts in fungal structural biology contribute in-depth reviews on a variety of topics with a focus on molecular and biochemical analysis. The final chapter in this section presents a fascinating review of how mathematical modelling can be used to understand the building of three-dimensional cell structures in the morphogenetic process. The second section, entitled New Taxonomic Tools, presents novel approaches to aid the understanding of strain variability, the significance of environmental and patient strains, and the relatedness of uncultured fungi. In addition the use of molecular tools for the taxonomic classification of previously unclassifiable fungi is featured.

Essential reading for everyone with an interest in medical mycology including: mycologists, biotechnologists, molecular biologists, and pharmaceutical and biotechnology companies.

Chapter 1. The Structure and Composition of the Fungal Cell Wall. Rafael Sentandreu, M. Victoria Elorza, Eulogio Valentín, and José Ruiz Herrera
Chapter 2. Biosynthesis of the Fungal Cell Wall. José Ruiz-Herrera, M. Victoria Elorza, Peggy E. Alvarez, and Rafael Sentandreu
Chapter 3. Cell Cycle of Fungal Pathogens. J. Berman and Neil A. Gow
Chapter 4. Morphogenesis in Candida albicans. Tamaki Cho
Chapter 5. Morphogenesis in Other Agents of Systemic Mycoses. Gioconda San-Blas and Gustavo Niño-Vega
Chapter 6. Regulation of Morphogenesis by Conserved Developmental Pathways in Pathogenic Fungi. Idit Hazan and Haoping Liu
Chapter 7. Beyond Molecular Biology: Fungal Morphology as a Mathematical, Biophysical and Computational Subject. Gioconda San-Blas and Juan Murgich
Chapter 8. The Use of Phylogenetic Analysis to Investigate Uncultured Microbes In Medical Mycology. Leonel Mendoza and Victor Silva
Chapter 10. Polysaccharides F1SS: Taxonomic and Evolutionary Characters for Ascomycetes. A. Prieto, O. Ahrazem, M. Bernabé and J.A. Leal

Order from:
MALDI-TOF Mass Spectrometry in Microbiology
Edited by: Markus Kostrzewa and Sören Schubert (Published: 2016)

Aspergillus and Penicillium in the Post-genomic Era
Edited by: Ronald P. de Vries, Isabelle Benoit Gelber and Mikael Rørdam Andersen (Published: 2016)

The Bacteriocins: Current Knowledge and Future Prospects
Edited by: Robert L. Dorit, Sandra M. Roy and Margaret A. Riley (Published: 2016)

Omics in Plant Disease Resistance
Edited by: Vijai Bhadauria (Published: 2016)

Acidophiles: Life in Extremely Acidic Environments
Edited by: Raquel Quatrini and D. Barrie Johnson (Published: 2016)

Climate Change and Microbial Ecology: Current Research and Future Trends
Edited by: Jürgen Marxsen (Published: 2016)

Biofilms in Bioremediation: Current Research and Emerging Technologies
Edited by: Gavin Lear (Published: 2016)

Microalgae: Current Research and Applications
Edited by: Maria-Nefeli Tsaloglou (Published: 2016)

Gas Plasma Sterilization in Microbiology: Theory, Applications, Pitfalls and New Perspectives
Edited by: Hideharu Shintani and Akikazu Sakudo (Published: 2016)

Virus Evolution: Current Research and Future Directions
Edited by: Scott C. Weaver, Mark Denison, Marilyn Roossinck and Marco Vignuzzi (Published: 2016)

Arboviruses: Molecular Biology, Evolution and Control
Edited by: Nikos Vasilakis and Duane J. Gubler (Published: 2016)

Shigella: Molecular and Cellular Biology
Edited by: William D. Picking and Wendy L. Picking (Published: 2016)

Aquatic Biofilms: Ecology, Water Quality and Wastewater Treatment
Edited by: Anna M. Romani, Helena Guasch and M. Dolors Balaguer (Published: 2016)

Alphaviruses: Current Biology
Edited by: Suresh Mahalingam, Lara Herrero and Belinda Herring (Published: 2016)

Thermophilic Microorganisms
Edited by: Fu-Li Li (Published: 2015)

Flow Cytometry in Microbiology: Technology and Applications
Edited by: Martin G. Wilkinson (Published: 2015)
“an impressive group of experts” (ProtoView)

Probiotics and Prebiotics: Current Research and Future Trends
Edited by: Koen Venema and Ana Paula do Carmo (Published: 2015)

Epigenetics: Current Research and Emerging Trends
Edited by: Brian P. Chadwick (Published: 2015)
“this is one text you don’t want to miss” (Epigenie); “up-to-date information” (ChemMedChem)

Corynebacterium glutamicum: From Systems Biology to Biotechnological Applications
Edited by: Andreas Burkovski (Published: 2015)
“Without question a valuable book” (BIOSpektrum)

Advanced Vaccine Research Methods for the Decade of Vaccines
Edited by: Fabio Bagnoli and Rino Rappuoli (Published: 2015)