Aspergillus fumigatus and Aspergillosis
Aspergillus fumigatus
and Aspergillosis

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WASHINGTON, D.C.
To the patients with aspergillosis, and their families, who have been told there is little hope.

To our friends, colleagues, lab members, students, and families with whom we share this simultaneous love and hatred of *Aspergillus fumigatus*.

And to Michelle, who has taught us both about surviving illness with dignity.
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Preface

Medicine has advanced astonishingly fast in the past several decades. As newer medical technologies are repairing the human body in ways never imagined only a few years ago, infectious diseases are emerging as a leading cause of morbidity and mortality among these newly susceptible patients. Invasive and chronic fungal infections have become a formidable clinical opponent, and foremost among them is *Aspergillus fumigatus*.

This volume has been carefully engineered to offer the latest insights into the fundamental biology and pathogenesis of this organism and how it establishes disease, as well as the newest strategies for characterizing, diagnosing, and treating its spectrum of clinical infection. Other great textbooks have been published which address general fungal physiology, overall medical mycology, the biology of the aspergilli specifically, or antifungal therapy, yet this is the first volume which specifically merges the newest scientific knowledge with the latest clinical experience and data to yield a combined synopsis of this organism and its diseases.

Here we have assembled chapters from a large and international contingent of experts in the field to explore every major aspect of *A. fumigatus* and how it kills so many patients. This includes chapters on the species itself, including morphology and unique essential genes. We also discuss the importance of growth and germination as well as the organism’s response to environmental stress by moving from a saprophyte to a pathogen. The interface with the host immune system is paramount to disease phenotype, and this is outlined, as are the many faces of disease created by *A. fumigatus*. Newer diagnostic strategies are covered, including advances from the molecular age, the optimal timing of antifungal therapy, and the strategic choice of which agent to use.

It is our intent that *Aspergillus fumigatus and Aspergillosis* will encompass the current state of knowledge to serve as a resource guide for the next decade of study on this organism and the many diseases it causes. We hope that this volume will also serve as a catalyst for future young investigators to begin their own explorations in this field, to challenge the unproven dogmas and define the mechanisms of disease. This textbook is purposefully designed to unify the world’s *Aspergillus* experts and collaborate toward our common goal. Here we outline today’s state of the art and propose tomorrow’s difficult and unanswered questions.

It has been our pleasure to serve as the coeditors, and also as authors, for this exciting new book merging science and medicine. We thank the many con-
tributors to this new voyage; their expertise and efforts have forged a complete volume summarizing the many facets of *A. fumigatus*. We are also grateful to Gregory Payne, our editor at ASM Press, for his tireless energy and dedication to producing such an excellent book. We hope that our effort not only outlines the best thinking, but inspires creative solutions to the growing problem of *A. fumigatus* and aspergillosis.

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