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## Preface

This book is designed to serve researchers as a source book for methodologies related to the study of medically important fungi and *Candida spp.*, in particular. We have followed the organization of previous volumes in this series in regard to the presentation of each chapter. The past decade has witnessed numerous advances in the study of human pathogenic fungi in areas of biochemistry, molecular biology, taxonomy, and physiology. In addition, the availability of genome sequences of pathogens such as *Candida albicans*, *Cryptococcus neoformans*, *Aspergillus fumigatus*, and other model fungi has resulted in new, exciting insights into the pathogenesis of fungal diseases. Thus, chapter contributions in this volume have been selected to provide the reader with a variety of approaches that cross discipline lines. For example, because of the critical importance of molecular methods, we have included chapters on reporter gene assays, transformation, gene expression *in vivo*, and methods for large-scale gene disruption. Chapters concerning preparation of samples for proteomic investigations as well as tandem affinity purification, which allow for the identification of interacting proteins, have also been included. The latter chapter highlights the beginning of our understanding of how genes (as words in a sentence) can be organized into a higher level of complexity so that words (genes and proteins) can be arranged into sentences (interacting genes/proteins). Methods for the study of immune response to fungal infections are highlighted in chapters on the evaluation of candidate vaccines, SIgA in protection, the interaction of fungi with dendritic cells, and phagocyte assays with fungi. Likewise, strain identification is vital in studies of pathogenesis and in clinical settings. This topic is discussed in chapters that provide these determinations by DNA fingerprinting or sensitivity to killer toxins. Finally, disease models of candidiasis are described, and these discuss animal models as well as *in vitro* models (biofilm and tissue culture) that evaluate virulence. The text does not attempt to be inclusive for every current method, but rather the protocols most used are discussed. However, chapters reference alternative procedural approaches, and it is anticipated that the text will well serve the investigators as a source of methods in the field of medical and molecular mycology.

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