

Preface

Fungi play an important role in biotechnological processes, phytopathology, food technology, and biomedical research. For more than 50 years these lower eukaryotes have been useful in genetic and other fundamental biological research. In the first few decades of this research, fungal genetic studies were done mostly by geneticists and mycologists who were already familiar with the main aspects of these organisms. In recent years, biochemists and other scientists (who may have little genetic background) have used molecular genetic analysis and gene manipulation. Just as the molecular approach can profit from formal genetics, classical genetic analysis can profit from molecular techniques. Since fungi are often very suitable as hosts for heterologous genes, and since molecular genetic analysis techniques are becoming more widespread, there was a need for a book on fungal genetics covering formal and molecular genetics and techniques.

The first part of the book deals with genetic principles. The second part contains case studies on the genetics of specific fungi, indicating what the interesting features of each organism are for genetic studies. The aim is to cover the main aspects of fungal genetics using a practical approach. The book gives a broad view on fungal genetics from numerous specialists on particular subjects or organisms. The chapters are suitably formatted for use in courses

and as a practical reference. Each chapter starts with a treatise of the basic concepts, followed by an experimental design that illustrates the practical approach. Several experimental protocols contain an illustrated outline, discussion points that focus the reader on special aspects, and suggestions for further reading. This organization facilitates an understanding of the practical approach without the reader having to do the experiment. However, the experiments are reproducible without requiring very much experience, and the strains are commonly available for general use. This reference on the genetics of fungi demonstrates the concerted use of classical and molecular methods and techniques for genetic analysis and breeding of fungi—two aspects of fungal genetics that make it such a fascinating field of science.

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