

Book Review

Genetic Techniques

Corinne A. Michels; John Wiley and Sons, Ltd, Chichester, 2002, xii + 241 pages, ISBN 0-471-89921-6, £29.95

Molecular genetic analysis is the fusion of biochemical and genetic approaches to investigate the underlying mechanisms of cellular processes. These techniques have been developed over the past decades by researchers working with model organisms such as bacteriophage, *E. coli*, *Saccharomyces*, *Drosophila*, maize, and more recently, *Arabidopsis* and *C. elegans*. The details of cultivation and crossing of each organism differ, but the theory behind molecular genetic analysis is the same for all of these organisms.

This book is divided into three sections. Section I describes *Saccharomyces cerevisiae* as a genetic research organism. The genome, life cycle, sexual cycle, basic genetic methods, plasmas and tools for molecular genetic manipulation are described. An overview of important standard techniques in cell and molecular biology is presented along with *Saccharomyces* cell structure. This summary is presented largely to facilitate reading of the research literature articles included in the case studies. Section II presents the various methods and tools of molecular genetic analysis and takes a theoretical approach. Section III consists of the *Saccharomyces* case studies. With each case study, one is expected to read, interpret, and critique a series of original

research articles by responding to a series of homework questions based on each article. Along the way, the reader will develop an appreciation for the molecular genetic method of analysis and the synergy between the genetic, biochemical, and cytological approaches to problem-solving in biological systems. More important, the critical thinking skills illustrated by the case studies presented here should translate quite readily to the reader's own research projects and scientific decision-making.

Genetic Techniques for Biological Research teaches the methods of molecular genetic analysis using a case study approach with the yeast *Saccharomyces* as the model genetic organism. The tools available for *Saccharomyces* are the most highly developed, and yet also most straightforward, of all of the eukaryotic research organisms. Furthermore, the theoretical basis of the methods of molecular genetic analysis learned using yeast are directly applicable to other organisms.

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