



MOLECULAR
BIOLOGY
and
biotechnology
Fourth Edition

edited by J.M. WALKER *and* R. RAPLEY

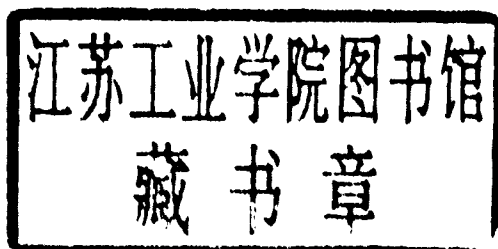
Molecular Biology and Biotechnology

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Edited by

John M. Walker and Ralph Rapley

University of Hertfordshire, Hatfield, UK



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Preface

One of the exciting aspects of being involved in the field of molecular biology is the ever accelerating rate of progress, both in the development of new methodologies and the practical applications of these methodologies. Indeed, such developments led to the idea of the first edition of *Molecular Biology and Biotechnology* and subsequent editions have reflected the fast moving nature of the area. To keep pace with the ever expanding technological changes we have increased the basic molecular biology content of the book from one to two chapters in this latest edition. In recent years the development of the World Wide Web has been exponential and now provides an essential source of information and access to databases for the molecular biologist. We therefore considered it both appropriate and timely to include a new chapter devoted to the subject of Bioinformatics. Other chapter titles remain the same as the previous edition but this should not mask the significant updating of the content of these chapters in response to major developments in each area. Indeed, in order to reflect research developments, the majority of these chapters have required a total re-write rather than simple updating.

PCR (only introduced as a stand-alone chapter in the last edition) is firmly established as a day-to-day tool and its revolutionary effect on the field is evidenced by its inclusion in chapters throughout the book. Molecular biology continues to profoundly affect progress in areas such as plant biotechnology, food technology (especially the contentious area of genetically modified foods), vaccine development, use and application of monoclonal antibodies, clinical treatment and diagnosis, the production of transgenic plants and animals, and many other areas of research relevant to the pharmaceutical industry. All these areas have been fully updated in this edition. In addition, we continue to ensure that biotechnology is not just considered at the gene level and full consideration continues to be given to aspects of large-scale production and manufac-

turing with chapters on fermentation technology, downstream processing and the applications of immobilised biocatalysts.

Our continued intention is that this book should primarily have a teaching function. As such, the book should prove of interest both to undergraduates studying for biological or chemical qualifications and to postgraduate and other scientific workers who need a sound introduction to this ever rapidly expanding area.

John M. Walker
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