

Preface

The concept underlying this book has not changed from the first edition; it is to provide an introductory text that is hopefully useful to undergraduate students, graduate students and other scientists who want to understand and use PCR for experimental purposes. Although applications of PCR are provided these do not represent a comprehensive catalogue of all possible PCR applications, but serve to indicate the types of application possible. The main purpose of this new edition of *PCR*, as for the first edition, is to provide information on the fundamental principles of the reactions occurring in a PCR tube. Understanding these basic features is essential to fully capitalize upon and adapt the power of PCR for a specific application. This means that the structure of the book remains similar to that of the first edition. The first six chapters discuss the fundamental aspects of performing PCR and of analyzing and cloning the products. All these chapters have been updated and additional aspects added where appropriate. In some Sections there is discussion of particular enzymes or instruments. However, clearly suppliers are continually changing their formulations or designs and so these are provided only to indicate the different types. We recommend checking manufacturers' literature for new and improved systems, particularly when it comes to investing in the purchase of a new PCR instrument. In terms of the applications, a new chapter has been written on real-time PCR, which represents a very sensitive and reliable method for providing information about the relative concentrations of starting template molecules, such as mRNA or genomic genes. The remaining chapters have been updated and protocols have been rationalized to retain those that are likely to be the most useful. We have also removed the list of web addresses of various reagent suppliers. Such lists can quickly become outdated and it is simpler for the reader to identify the up to date website from a web search engine. We hope that this book will provide the basic information required to get scientists started with PCR experiments either to use it simply as a routine tool, or as a starting point for developing new and innovative processes.

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