

PREFACE

Raymond Dwek and I wrote *Biological Spectroscopy* nearly 30 years ago, now long out of print. Completion of that project was mainly due to Raymond's energy and drive. Competing demands for our time meant that we did not find the energy to revise and update it in subsequent years. The available biophysical tools and techniques have, however, evolved and expanded in an astonishing way in recent decades. We can now see single molecules in living cells and make high resolution movies of the ribosome in action. We have ready access to databases of genes and sequences from many hundreds of organisms and over 70 000 sets of macromolecular coordinates. Microscopy has been revolutionized and computers are now ubiquitous and extraordinarily powerful. I thus decided to write a new book with somewhat different emphasis and scope to *Biological Spectroscopy*. Some elements of the old are still discernible and I will always be thankful to Raymond for his contributions to those.

My aim here is to emphasize the general principles and practicalities of a wide range of biophysical techniques. I focus mostly on the analytical toolbox; this means that some production and preparative techniques get less attention than they deserve. Space limitations and the ready availability of alternative sources also led me to give relatively few illustrative

examples; readers can now find numerous up-to-date specific examples related to their own interests by using PubMed and other powerful search engines.

A selection of additional recent examples is, however, given in the online "Journal Club" supplement (see panel below). My main goal is to impart a basic understanding of how the tools work, so that their limitations and advantages can be appreciated. I hope practicing molecular biologists and students will be able to gain useful insight into the wide array of powerful tools now available and how they can be applied to their problems. This book aims to complement the excellent available molecular cell biology and biochemistry texts that describe the numerous exciting insights into biological molecules that have been obtained by applying biophysical tools.

I have taught this subject for over 30 years and many students and colleagues have contributed to my enjoyable, educational journeys through the subject. My thanks go to them. Thanks too to Elspeth Garman, Justin Benesch, Sandra Campbell, Michèle Erat, Philip Fowler, Kate Heesom, Mark Howarth, Nick Price, Jason Schnell, and David Staunton for their input. Jonathan Crowe of Oxford University Press has also been particularly helpful and constructive; those errors that remain are, of course, entirely my responsibility.



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- figures from the book in electronic format, ready to download;
- a series of Journal Clubs—discussion questions, perfect for seminar or tutorial use, built around a selection of journal articles that build on and augment topics covered in the book.

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