

Preface

This textbook aims to provide a comprehensive and up-to-date overview of proteins, both in terms of their biochemistry and applications. The first edition was published over a decade ago and in the intervening period this field has continued to rapidly evolve. The new edition retains the overall structure of the original one. Chapters 1–4 are largely concerned with basic biochemical principles. In these chapters issues relating to proteomics, protein sources, structure, engineering, purification and characterization are addressed. The remaining 10 chapters largely focus on the production of proteins and their applications in medicine, analysis and industry.

Despite the similarity in overall structure, the new edition has been extensively revised and updated to reflect recent progress in the area. Relative to the earlier edition there is greater emphasis on protein biochemistry, engineering and proteomics. The production of proteins via fermentation and animal cell culture are considered in new sections, which better balance the subsequent consideration of protein purification. The protein application chapters have been updated to reflect recent trends and developments. Thus, for example, recent bioprocess developments such as the use of disposable bioreactors are considered, there is greater relative emphasis on recombinant production systems and engineered products, therapeutic antibodies now are

considered in a full dedicated chapter, and newer industrial applications such as the use of enzymes in biofuel generation are also included. The chapters considering protein applications have also been strengthened via the incorporation of numerous specific commercial product case studies.

The text caters mainly for advanced undergraduate and graduate students undertaking courses in applied biochemistry/biotechnology, but it should also be of value to students pursuing degrees in biochemistry, microbiology, or any branch of the biomedical sciences. Its scope also renders it of interest to those currently working in the biotechnology sector.

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