
Preface

Interest in the field of peptides and proteins has increased enormously in recent years. With the achievements in genomics as a background, the scientific community has now, for the first time, the opportunity to establish the role of peptides and proteins in health and disease at the molecular level.

There are several excellent textbooks on proteins, and a few on peptides. However, we feel that there is a need for an up-to-date textbook covering both peptides and proteins in a concise, introductory manner. We hope that we have written this book in the spirit of Tom Creighton's famous book *Proteins—Structures and Molecular Properties*. This book, known by many as *Creighton*, has inspired generations of young students and investigators, and we have taken it as a guide on how to cover modern bioscience based on molecular thinking. Here, we present our view on modern peptide and protein chemistry.

We have focused particularly on the rapidly developing fields of peptide synthesis, folding, protein sorting, protein degradation, methods in peptide and protein research, bioinformatics, proteomics, and clinical aspects of peptides and proteins. Among multiple topics, we describe some representative classes of peptides and proteins such as enzymes, cell-surface receptors, other membrane proteins, antibodies, fibrous proteins, and some bioactive peptide classes. We regard these as particularly important including clinical aspects of proteins and peptides, such as misfolding-based diseases (prion diseases), miscleavage-based diseases (Alzheimer's disease), and SNP-dependent diseases, together with the role of proteins in cancer development. We discuss the use of proteins and peptides as drugs and solid-phase synthesis for their production. Finally, we emphasize peptides as important functional biomolecules and research tools.

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