Preface to the 1st Edition

When Bernard Westerop, the skilled publishing editor of the journal *Peptides*, suggested that I edit a book on peptides, my initial reaction was the same as it had been when I was asked many years ago to be editor of the first peptide journal: I would better wait until I stop doing basic research.[1] However, it did not take me long to realize that if the book was properly organized, I could greatly accelerate my main goal as a journal editor: bringing together all aspects of biologically active peptides.

Investigators in selected areas of research, frequently, are oblivious to work in related areas. In the peptide field, for example, many investigators working with mammalian peptides are unaware of the large number of peptides from other forms of life, such as the hundreds of venom peptides from scorpions, snakes, sea anemones, spiders, insects, and worms. They also usually overlook the applicability of many pertinent observations made with different types of peptides, such as those in bacteria. This point is emphasized by a statement in the chapter by Nicolas and Amiche: "The discovery of the considerable extent of sequence identity between the neuropeptide and antimicrobial peptide precursors is unprecedented"; I suspect that it is also little known. and who would have thought that plants make peptides (the first being identified in 1991 by Clarence A. (Bud) Ryan, editor of the Plant Peptides Section) and that they can function as hormones.

Senior Publishing Editor, Tari Paschall, and Director of Development, Jasna Markovac, were very helpful and encouraged the publication of this amalgamation in a book large in length, width, and depth. One of the first decisions I had to make was whether the book should contain a few large chapters or many small ones. Since my goal was to assemble the disparate aspects of the field in one place for the first time, I chose to try to include as many types of peptides as possible, discussed by experts for each category. After careful consideration, I decided to organize this vast field into 20 sections, with some peptides intentionally discussed in more than one section. I then carefully chose the editors for these 20 sections. Thereafter, I was largely guided by their choices of chapters and authors. Although we tried to include articles for as many important peptides as possible, there were obviously some omissions, including at least one of my own favorite peptides, but we were more interested in showing the breadth of the peptide field.

The next big problem arose in enforcing the page restriction for each chapter. Understandably, there was the tendency for the authors to include everything. Although we tried to impose uniformity in design of the chapters, we were flexible in allowing authors to choose a balance between the amount of text and number of references within the space limitation. Reviews were cited wherever possible to save space. Even so, most chapters were initially too long to allow publication of all the material in a single volume.

There was one figure, however, suggested by Hubert Vaudry, that was incorporated into all chapters of his Brain Peptides section. This was a template of a sagittal section of the brain depicting the distribution of the peptide (cell bodies and fibers) or the peptide precursor mRNA. It serves to unify his large section of the Handbook, and his outline provided homogeneity to several other sections, including those involving Plant, Bacteria, Invertebrate, and Amphibian peptides:

1. Discovery
2. Structure of the Precursor mRNA/Gene
3. Distribution of the mRNA
4. Processing of the Precursor
5. Receptors and Signaling Cascades
6. Information on Active and/or Solution Conformations (if available)
7. Biological Actions Specific to the Organ or System
8. Pathophysiological Implications

Since the first few of these items could be discussed in several sections of the book, it was decided that the general background sections common to several chapters dealing with mammalian peptides would be discussed primarily in the Brain Peptides Section. For other sections, such as GI Peptides, this same outline is followed except that the focus is specific for the GI tract.

Variations of this outline are used in other sections. For example, for the Ingestive Peptides Section, David York recommended this outline:

1. Description of the effects on feeding behavior,
2. Studies from genetic manipulations or mutations, for example, knockouts, transgenics, siRNA experiments,
3. Functional response of the peptide/gene to differing metabolic and feeding states,
4. Sites of action and neural networks affected,

5. Interactions with other peptidergic/aminergic systems,
6. Physiological and pathophysiological implications.

Other section editors recommended further variations. The Vaccine Peptides Section included the disease target as one of the categories. Naoto Minamino, discoverer of several peptides, recommended use of the Brain Peptides Section format but also noted that cardiovascular peptides are known to participate in the pathogenesis of cardiovascular diseases, and their plasma concentrations are often used as markers for their diagnosis, prognosis, and therapy. Therefore, he instructed authors in his Cardiovascular Peptides Section to focus on the peptides' endogenous form and concentration in plasma as well as their alteration under normal (physiological) and diseased (pathological) conditions.

The book tries to keep the abbreviations consistent. However, for some—for example, LHRH/GnRH and orexin/hypocretin—we allowed differences to reflect the authors' previous work already in the literature, even though I was an author of the paper showing that LHRH released both gonadotropins[4] and even though my one paper[2] on orexin/hypocretin used only the term *orexin*. Therefore, while there are a large number of chapters written by different authors, there is more uniformity in organization than would be expected from so many contributors. Discussion of some of the same peptides in different sections emphasizes the system involved. Conversely, some peptides discussed in only one section have actions that could fit into several sections (e.g. IGF-l). Many of the chapters are written by the investigator who made the initial discovery of the peptide being discussed.

For those mammalian peptides included in more than one section of the book, the emphasis is different in each section. Some degree of overlap was necessary, but it was kept to a minimum by the early transmission of the chapters in the Brain Peptides Section to the authors of chapters dealing with the same peptides in other sections. This was accomplished by the imposition of a deadline for the Brain Peptides chapters that was 2 months sooner than that for the other chapters. Moreover, each author was provided with the e-mail addresses of all authors and encouraged to communicate directly, especially after receiving drafts of related chapters from me.

It is very satisfying for me to see the tremendous body of knowledge in the field of biologically active peptides brought together in a single volume. I am especially gratified that so many chapters inherently reflect some of the concepts with which I have been personally involved: Peripheral peptides can affect the brain, endogenous antiopiate peptides exist, peptides can exert multiple effects, peptides can cross the blood–brain barrier directly, and others.[3] It is now almost inconceivable that they were once so controversial.

Despite the restrictions inherent in this large undertaking, the section editors and contributors were extremely cooperative, and I thank all of them. Their enthusiastic encouragement should ensure that this book will not only serve as an important reference source but will also widen the scope of the important field of biologically active peptides.

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After the publisher received all manuscripts, including this Preface, they decided that the formidable task of restricting the length of each chapter had been so successful that all materials designated for the supplemental disk could now be incorporated into this book.

REFERENCES

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