Hence, although a type II' β-turn state might be possible, a *cis*-amide bond linking residues 7 and 8 would best be classified as a type VIa β-turn. A turn of this nature would orient the lipophilic side chains of residues 7 and 8 into portions of space quite distinct from the orientation corresponding to the type II' turn preferred in compounds I and III, which have high affinities for bradykinin receptors. Additionally, the NMR experiments run in a lipophilic environment suggest that all amide bonds likely remain trans in both agonists and antagonists. Hence the inactivity of IV and V is not surprising. Another factor which might contribute to the lack of potency of these peptides is the additional steric space occupied by the two sulfur atoms contained in the disulfide bond. This additional steric volume might not be easily accommodated at bradykinin receptors.

In summary, five peptides assumed to have an inherently stabilized β-turn geometry at their C-terminus were designed and prepared. That two of these five peptides (I and III) are highly potent bradykinin receptor antagonists suggests that the solution conformations discovered for both bradykinin and NPC 567 in a lipophilic environment (either dioxane–water or SDS micelles) must closely approximate the bioactive conformations. Furthermore, these NMR studies, followed by the prudent design of potent compounds containing conformational constraints, demonstrate another in a growing number of examples of truly rational molecular design.

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Book Reviews

The Biology and Chemistry of Polyamines. Edited by Sara H. Goldemberg and Israel D. Algranati. Oxford University Press, New York. 1989. xiii + 244 pp. 15.5 × 23 cm. ISBN 0-19-963147-6. $60.00.

This volume contains the proceedings of an Argentine–Japanese joint seminar held in Buenos Aires in April 1989 and represents Symposium 184 of the International Union of Biochemistry (IUB). It is as well volume 12 of the ICSU Symposium Series.

The book is divided into six sections (24 chapters) which focus on (1) the modulation of metabolism and synthesis of macromolecules by polyamines (three chapters), (2) enzyme systems involved in polyamine metabolism (eight chapters), (3 and 4) polyamine structure and function in microorganisms and viruses (six chapters), (5) polyamines as effectors of mammalian cell growth and differentiation (six chapters), and (6) strategies for polyamine chemical synthesis (one chapter). The volume is prefaced with a comprehensive synopsis of the meeting and is concluded with a brief subject index.

As a written record of a scientific meeting, the value of this book mirrors the quality of participant selection by the meeting organizing committee. The individuals that were selected to actively participate at this symposium are interested in a broad range of topics related to polyamine biology and chemistry. The chapters that these investigators contributed are, in general, well written and clearly illustrated. Most authors placed their research in clear scientific and historic context with concise and well-referenced introductions. The delay in publication of this volume is unfortunate and stunts its utility. Nonetheless, the editors have brought together a notable temporal landmark for this area of research.

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Hormones. From Molecules to Disease. Edited by Etienne-Emile Baulieu and Paul A. Kelly. Chapman and Hall, New York. 1990. viii + 697 pp. 21.5 × 28 cm. ISBN 0-412-02791-7. $62.50.

Striking advances in the field of endocrinology have been achieved in the last decade. New hormones, hormone-like molecules, receptors, and mechanisms of action continue to be elucidated. Techniques in molecular biology have enabled the determination of detailed gene structures of many compounds involved in hormonal systems. Marked homology has been noted between oncogene products and various components of the endocrine network. This observation, in turn, has led to the suggestion that deregulation of hormonal function is involved in the initiation and/or development of cancer. Also, it is now known that the central nervous system is both a target for and site of formation of many hormones and that these substances, neurotransmitters, growth factors, and immunopeptides all act via similar mechanisms. The last decade has also witnessed the recognition of calcium, phospholipid derivatives, and protein kinases, in addition to cAMP, as second messengers in the action of hormones. These discoveries have had broad therapeutic implications, such as new strategies for fertility control, management of diabetes, and treatments for cancer, cardiovascular disorders, and mental dysfunctions.

The objective of this book is to present this diverse and rapidly changing field in a clear and precise fashion. This is accomplished by contributions from the world's leading specialists who review the major hormones and hormonal functions in 14 chapters. Related topics are treated in an innovative series of short, single-subject essays inserted between the chapters. A very adequate subject index is included.

Medicinal chemists, endocrinologists, and scientists from various other disciplines in the health sciences will find this clearly written book a valuable resource for review or entry into fascinating new research areas.

Staff

Goodman and Gilman's The Pharmacological Basis of Therapeutics. Eighth Edition. Edited by Alfred G. Gilman, Theodore W. Rall, Alan S. Nies, and Palmer Taylor. Pergamon Press, New York. 1990. xvi + 1811 pp. 18.5 × 26 cm. ISBN 0-08-040296-8. $79.50.

Some believe that medicinal chemists know more pharmacology than pharmacologists know chemistry. If so, one reason may be that for 50 years chemists have had access to *Goodman and Gilman's The Pharmacological Basis of Therapeutics*. In large measure, the popularity of this text derives from its appeal to scientists in fields ranging from chemistry to physiology, biochemistry, and clinical medicine. The eclectic nature of pharmacology lends itself to this type of coverage and, over the years, the editors of this text have set the standard for defining ther-

apeutic agents in the context of each discipline.

The latest edition, the 8th, is the first prepared without the guidance of either originator. In recent years, under the direction of Gilman fils, a group of editors has been assembled to oversee the preparation of this work. Readers familiar with earlier editions will not be disappointed with the present offering since it retains the format and editorial standards characteristic of the earlier works. Indeed, one of the strengths of this text is that although it is multiauthored, the style and presentation are consistent throughout. Although much of the information has been carried over from earlier volumes, coverage has been increased in areas where recent advances have been made in pharmacotherapy. To this end, new sections have been added on immunology, dermatology, and gastroenterology, and an entire chapter has been devoted to the renin–angiotensin system. Other modifications include the elimination of chapters on central nervous system stimulants and the section on locally acting drugs. Members of these classes having historical, clinical, or toxicological importance are covered under other headings. Thus, by judiciously pruning the text of older material, the editors have been able to expand coverage of emerging fields without increasing the size of the text. Citations cover the primary literature through 1989.

Medicinal chemists and others interested in pharmacology will find this edition as indispensable as earlier versions and will be comforted in knowing that the new generation of editors has so ably carried on the tradition of Louis S. Goodman and Alfred Gilman.

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Progress in Basic and Clinical Pharmacology, Volume 3, Biological Basis of Psychiatric Treatment. Edited by R. Pohl and S. Gershon. Karger AG, Basel, Switzerland. 1990. x + 328 pp. ISBN 3-8055-5007-3. $126.75.

This is the third book in the "Progress in Basic and Clinical Pharmacology" series which offers, in nine chapters, valuable information on the neurobiology, pathogensis, and clinical treatment of major psychotropic disorders, schizophrenia, depression mania, and anxiety.

The first two chapters (65 pages) review the biological aspects, biochemical changes, and currently available treatment of schizophrenia. The authors concluded that schizophrenia is heterogeneous in the pathophysiological substrate and that many of its neurobiological aspects may yet be revealed as a result of ongoing molecular genetic and in vivo imaging studies.

Chapter 3 (54 pages) is the longest chapter of the book and focuses on the role of serotonin in psychiatric pathophysiology. Although it provides an impressive discussion on the role of the 5-HT_{1A} receptor subtype, the chapter did not include information on recent ligands of the 5-HT_3 receptor subtypes, many of which are currently available or at a late stage of development.

Chapters 4 and 5 (50 pages) address the role of NE in the pathogensis of depression as well as recent developments in the pharmacological management of depression. In these chapters, the authors outline the putative role of the NE system in animal behavior and mood regulation in man, and the impact of new medication (serotonergic agents) in the treatment of depression.

Electroconvulsive therapy (ECT) as an alternative of symptomatic treatment for depressive disorders is thoroughly reviewed in Chapter 6 (41 pages) with emphasis on the clinical features of ECT. Comparative trials of ECT and general antidepressants are listed to determine relative efficacy; however, these studies did not include new serotonergic agents. The effects of ECT on brain neurotransmitters and memory were also discussed.

In chapter 7 (31 pages) particular attention is paid to the clinical pharmacology of drugs that have been described as mood-stabilizing drugs, as alternatives to lithium.

The last two chapters (8 and 9, 69 pages) include a discussion of the neurobiological mechanisms and effective treatments of anxiety disorders. They address the involvement of various neurochemical and neurohumoral systems in the development of anxiety and fear states. Available treatments with a variety of pharmacological agents such as antidepressants, benzodiazepines, β-blockers, and serotonergic agents were also reviewed.

The book is certainly well-organized and is fairly consistent, a result of excellent editing. Specific information is easy to find, using either the table of contents or subject index. However, the authors of various chapters relied heavily on tabulated data as the basis for their discussion, and it would have been beneficial to the reader if a list of tables had been included in the table of contents.

This book will be particularly useful to those involved in the many aspects of clinical treatments of psychiatric disorders and will be a valuable addition to academic and industrial libraries.

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Chemistry and Biology of Pteridines 1989. Edited by H.-Ch. Curtius, S. Ghisla, and N. Blau. Walter de Gruyter, Berlin and New York. 1990. xxxvi + 1340 pp. 17 × 24 cm. ISBN 3-11-012199-9. DM 450.

This book is subtitled "Proceedings of the Nineth International Symposium on Pteridines and Folic Acid Derivatives, Chemical, Biological and Clinical Aspects, Zurich, Switzerland, September 3–8, 1989". It contains 240 well-written papers which summarize the advances in the pteridine art as of this time. The book contains an author index as well as an extensive subject index. The First International Pteridine Symposium was held in 1952, and the continued interest in this class of compounds is reflected by the diverse nature and number of papers in this volume. Pteridines are ubiquitous—they play a key role in the metabolism of species ranging from plants to man. From a biochemical point of view they are involved in the metabolism of one-carbon compounds, aromatic amino acid hydroxylation, and oxygen transfer in molybdoenzymes. From a physiological viewpoint they are involved in functions as diverse as growth both normal and abnormal, physiological processes regulated by catechol amines such as dopamine and norepinephrine, the immune response, and DNA repair. From a medical viewpoint pteridines are essential vitamins, and are involved in the treatment of cancer, malaria, hypertension, arthritis, psoriasis, and phenylketonuria.

The topics covered in this book reflect the current areas of active research. The book includes sections on synthesis, analysis, biosynthesis and biochemistry, tetrahydrobiopterin deficiency, various pterins, biology of pterins, tetrahydrobiopterin-dependent monooxygenases, folates, and antifolates. The contributors include most of the established investigators in this field as well as a substantial number of newcomers. I am sure that the confluence of many disciplines at the symposium resulted in much cross-fertilization of ideas. Likewise, this book will stimulate others to think about their work from new perspectives, and possibly take their work in new directions.

This book, like its predecessors, is essential reading for all those interested in the current work in this area. Much of it may not be published in final form for years. Institutional libraries serving the chemical, biological, and medical communities should find this book a valuable addition to their collections. The high price, which is justified by the size and quality of the book, will discourage individual purchasers.

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