



## Pharmaceuticals: Classes, Therapeutic Agents, Areas of Application Volume 1

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### Introduction: Cardiovascular Drugs

*Introduction: Cardiovascular Drugs* is the first volume in a series of four focussing on various therapeutic areas. This volume is aimed at the medicinal chemist with a focus on cardiovascular drugs and will provide the scientist with an overview of compounds introduced onto the market. After a short introduction to the pharmaceutical industry, the book is subdivided into several chapters, focussing on cardioactive and vasoactive drugs, blood pressure increasing agents, antihypertensive agents, antiarrhythmic drugs,  $\beta$ -blockers, cardiac glycosides and synthetic cardiotonic drugs, calcium antagonists, drugs affecting circulation, and diuretics.

The book has been structured so that there are many areas of overlap, leading to the repetition of several classes of compounds. For example, the calcium channel antagonists are listed in five different chapters but without sufficient cross-referencing. As a result, the structure of verapamil, for example, can be found four times in the book. The homogeneity of the chapters is also limited. Although the  $\beta$ -blockers are described in detail with pharmacodynamics, pharmacokinetics and the clinical use of the drugs, only limited information is provided for the calcium channel antagonists. However, there is reasonable consistency for most compounds in all of the chapters with regards to providing the compounds formula and structure,

molecular weight, melting point and CAS-registry number. In addition, for several compounds a short description of their synthesis and also the manufacturing pharmaceutical company of the compound are provided, together with their respective trade names. The majority of the cited literature is 20–30 years old and should have been supplemented by more recent publications. Unfortunately, the background of the respective physiology and pharmacology of antihypertensive, antiarrhythmic or diuretic drugs, for example, is only weakly described and aspects of modern molecular pharmacology do not appear to be discussed at all. As a further suggestion, it might have been helpful to increase the number of figures and schemata to the text.

It would also have been useful to the reader if an outlook towards new pharmacological strategies and an overview of compounds that are currently in preclinical and clinical development phases was provided. Further to this, a list of compounds that have been withdrawn from the market would be beneficial. This would have helped to present a more complete overview of this therapeutic area and the respective therapeutics.

In addition, I should also mention that the index is only provided as a general index in Volume 4, which makes it difficult to use the book as a quick source to obtain respective data and information.

In conclusion, I feel that scientists who are interested in the comparison of the chemical structures of the compounds on the market that are related to cardiovascular disorders will get an additional source of information for their work.

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## Pharmaceuticals: Classes, Therapeutic Agents, Areas of Application Volume 2

### Neuropharmaceuticals, Gastrointestinal Drugs and Respiratory Tract

The second volume of the book is composed of three sections; Neuropharmaceuticals, Gastrointestinal (GI) drugs and Respiratory tract. Within each section there are a number of topics, which reflect the diverse indications to which drugs might be put in those general areas (that is, 11 for neuropharmaceuticals, six for GI and three for respiratory tract).

The contributors are based mainly in Germany, although other nations are represented. Meanwhile, drugs and drug names focus on the USA and Europe (including the UK), but also extend occasionally to include the Pacific Rim. The language of the volume is comprehensible with only the occasional error, such as metabolism (presumably metabolism!).

With the complexity of the nervous system, it is perhaps not surprising that the editor has chosen to give a general introductory chapter entitled 'Neuropharmaceutical agents', which gives an overview of the anatomy, physiology, biochemistry and pharmacology of the nervous system. Given that Victor Whittaker is the author of the chapter, it is not surprising that the neurochemistry element is the strongest within this chapter.

Unfortunately, the brief pharmacological overview is some years out of date. For example, in describing the multiplicity of receptors associated with synaptic transmission, the comment is made that there are at least 'two types of muscarinic receptor' (there are at least five) ... 'at least four types of adrenergic receptors' (there are nine 'adrenoceptors') and ... 'probably three glutamate receptors' (there are at least 11). This lack of currency seriously sells short the potential for future therapeutic exploitation. Additionally, when dealing with signal transduction pathways, to suggest that G proteins might couple to 'guanidylate' (presumably guanylyl) cyclase, when this pathway was discarded at least a decade ago, is clearly lacking in currency; this is also apparent elsewhere in the text, where 'recent research' is cited using references from the 1980s.

Similarly, although drug structures are consistent and appear to be correct, the figures used to illustrate drug actions were primitive; the commentary on the back cover suggests that these are 'top-quality illustrations', but I must disagree. I have to challenge also the suggestion of 'extensive use of tables'.

Where is the market? Most, if not all, pharmaceutical chemists will have a recent copy of the British National Formulary, US Pharmacopoeia or similar equivalent to hand. I believe that a major plus point for this volume (and presumably other volumes in the series) lies in the referencing associated with each chapter so that follow-up of attributed remarks to the original source material can be conducted. On the negative side, however, is the lack of an index, which constitutes part of Volume 4 of the series. What this means is that the ordering of the text is based on an indication rather than a specific drug and necessarily there are overlaps where a particular drug can be used for multiple indications. For example,

benzodiazepines appear under both sedatives and anxiolytics, without any cross-referencing. Furthermore, entries for a drug that crops up under plural indications (e.g. lorazepam or diphenhydramine) are different, presumably as a result of being contributed by different authors. What this does suggest, though, is that the editorial control was not as rigorous as it could have been. In a similar vein, there appears to be no common progression to the introductory elements of the chapters. Some focus on mechanisms of drug actions, whereas others describe market share or historical context. Additionally, some chapters list abbreviations at the start of the chapter, although most do not. Abuse potential of some of the agents is inconsistently indicated, so that thiopental abuse is noted, but ketamine and  $\gamma$ -hydroxybutyrate (GHB) abuse is not.

In conclusion, I would say that this volume of the book does have a lot to recommend it, but it will be useful to only a select body of people. It might have some use as a reference source for undergraduate pharmacists, but the more likely target group is chemists working in the pharmaceutical industry. Thus, for a typical chemical listing in the text, the CAS-registry number, structural formula, molecular weight, melting and/or boiling point, chemical synthesis and trade names are given. These will no doubt be of use to the target group, but I can't help feeling that an electronic approach would be by far an easier route to access the information provided here.

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## Pharmaceuticals: Classes, Therapeutic Agents, Areas of Application Volume 3

### Anti-infectives, Endocrine and Metabolic Drugs

The third volume of the book comprehensively reviews anti-infectives, endocrine and metabolic drugs. There are major chapters covering antibiotics, chemotherapeutic agents and antimycotics in the anti-infectives section, and chapters on hormones and peptide and protein hormones dominate the endocrine and metabolic drugs section.

The editor has set the challenging aim of providing a reference book that is useful to a wide variety of professions, from marketing specialists to pharmaceutical chemists. To a large extent, these groups will be impressed with the information presented, the breadth of the information mirroring the wide target audience. Chemists and non-chemists alike will appreciate the generous use of chemical structures and the clarity with which the information is presented. This book presents a great deal of up-to-date information that has been thoughtfully put together in a concise and readable manner.

A wide target audience requires that each chapter be given an introduction that provides a gentle initiation to the topic. The chapter must include appropriate background material and, at the same time, it must also have a level of detail that is sufficient for the expert. In general, this book strikes this balance well, but perhaps some of the chapters do not cater for the less knowledgeable reader. Further information can be