Drug Design - Methodology, Concepts, and Mode-of-Action

by Gerhard Klebe, University Marburg, Germany

- Unique Springer reference book on the subject of drug design
- Intelligibly written, full color throughout, and illustrated with more than 100 computer graphics including an index of about 5,000 items
- 2013, XV, 901 p. 496 illus., 333 illus. in color.

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Unique work on structure-based drug design, covering multiple aspects of drug discovery and development. Fully colored, many images, computer animations of 3D structures (these only in electronic form). Makes the spatial aspects of interacting molecules clear to the reader, covers multiple applications and methods in drug design. Puts mode of action and spatial structure into the foreground. Of high relevance for academia and industrial research. Focus on gene technology in drug design, omics-technologies computational methods experimental techniques of structure determination multiple examples on mode of action of current drugs, ADME-tox properties in drug development, QSAR methods, combinatorial chemistry, biologicals, ribosome, targeting protein-protein interfaces.

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Preface
The present handbook on drug design builds on the German version first written by Hans-Joachim Böhm, Hugo Kubinyi, and me in 1996. After 12 years of success on the market, the German version of this handbook was entirely rewritten and significantly extended, then by me as the sole author. The new edition particularly considers novel approaches in drug discovery and many successful examples reported in literature on structure-based drug design and mode-of-action analysis. This novel version appeared in 2009 on the German market. Several attempts were made to translate this book into English to make it available to a wider audience. This intention was driven by the fact that the author was repeatedly approached with the question as to why such a successful book is not available in the English language. An analysis of the textbook market made apparent that no similar compendium was (and still is) available covering the same field of interest. Finally, Springer agreed in the translation project, and Dr. Leila Telan, a gifted bilingual medicinal chemist and physician, was found willing to take the task of producing a first draft of a cover-to-cover translation of the German original. This version was corrected, and some chapters extended by the author. The book is meant for students of chemistry, pharmacy, biochemistry, biology, chemical biology, and medicine interested in the design of new active agents and the structural foundations of drug action. But it is also tailored to experts in drug industry who want to obtain a more comprehensive overview of various aspects of the drug discovery process. Such a book project would not have been possible without the help of many friends and colleagues. First of all, I want to express my sincere thanks to Dr. Leila Telan, Düsseldorf, Germany, who produced the first version of this translation. Her version and the modifications of the author have been carefully proofread by many colleagues in the field. Their help is highly appreciated. Furthermore, I would like to acknowledge the help of Prof. Dr. Hugo Kubinyi, Heidelberg, Germany, who assisted in correcting the first version of the English translation. Particular thanks go to Dr. Simon Cottrell, Cambridge, England, and to Dr. Nathan Kilah, Hobart, Tasmania, Australia, for their excellent and very thorough proofreading of the different chapters. The project was ideally guided by Dr. Daniel Quinones and Dr. Sylvia Blago, Springer, Heidelberg, Germany. The author is grateful to the publisher for their assistance and technical support in producing the electronic and printed version of this handbook.

Marburg, Germany, May 2013 Gerhard Klebe

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