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BOOK REVIEW

Natural product chemistry for drug discovery

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Natural Product Chemistry for Drug Discovery. Antony D Buss, Mark S Butler (eds). RSC Publishing, Cambridge, UK (2010). 440 pp. ISBN 978-0-85404-193-0

This book is the 18th volume in the RSC Biomolecular Sciences Series, which provides authoritative insight into research at the interface between chemistry and biology, focusing on the fields of structural biology, chemical biology, bio- and chemoinformatics, chemical enzymology and biophysical chemistry. The editors' intention with this latest volume is not only to offer insights into the sources and methodologies that may be used to discover new natural-product-based drugs in the future but also to stress the utility and importance of this approach to drug discovery in terms of new clinical candidates and commercial success.

Natural products have held a special place in drug discovery, yielding numerous drugs and medical breakthroughs, particularly in the treatment of infectious diseases, cancer, hypercholesterolemia and immunological disorders. In all, 21 drugs approved for marketing between 2003 and 2008 owe their existence to natural product leads, primarily from actinomycete, bacterial and fungal sources. This book convinces us that, in the new century, natural products are still a valuable resource in the development of new therapeutic agents with broad structural diversity.

The book is composed of 15 chapters divided into five sections. The introductory section contains three chapters that provide a historical perspective, compare the diversity between chemical libraries and natural products, and explain the importance of research on new mechanisms of action for drug discovery. The four chapters in the second section review the sources of compounds for natural product research, covering not only microorganisms but also plants and marine organisms. The effects of the convention on biological diversity are also discussed with respect to the collection of samples. The third section's three chapters introduce advances in technology that have contributed to natural product drug discovery—including screening methods, new instrumentation for compound purification, dereplication and structure elucidation—and examine the combinatorial biosynthesis of natural products. The three chapters in the fourth section present a snapshot of natural products that were in the late stage of clinical development as of the end of 2008, with particular attention to two compounds, the anticancer agent NPI-0052 (salinosporamide A) and the anti-AIDS agent bevirimat. The final section includes the case studies of two recently marketed natural-product-derived drugs, daptomycin and micafungin.

In the era in which the platform for drug discovery and the business model for pharmaceuticals are dramatically changing, this book is a timely and comprehensive text not only for natural product researchers but also for many scientists in the life sciences.

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