Pergamon

Tetrahedron 58 (2002) 6235

TETRAHEDRON

Preface

Tetrahedron prize for creativity in organic chemistry

The Executive Board of Editors for *Tetrahedron* Publications and Elsevier Science Ltd. is pleased to dedicate this special Symposium-in-Print issue to *Professor Yoshito Kishi* of Harvard University, the recipient of the *Tetrahedron Prize for 2001*. Professor Kishi is being recognized for his brilliant and innovative work in organic synthesis, especially in the general areas of developing methods for enantioselective synthesis and the total synthesis of complex natural products. In celebration of Professor Kishi's accomplishments, this special issue is entitled, 'Beyond Natural Product Synthesis'. This theme is meant to capture the varied and creative contributions made to the field of organic chemistry by those who have engaged in natural product synthesis and its many manifestations, including the vital role that natural products has played in advancements in medicinal chemistry and chemical biology.

In the first portion of this Symposium-in-Print, Professor Kishi summarizes both personal and professional experiences, in an intriguing perspective on some of his work. Following Professor Kishi's engaging account is a series of articles from just a few of the many co-workers, colleagues and friends who have been associated with him over the course of his distinguished career.

In his comments at the 1968 Welch Conference on Organic Synthesis, the late R. B. Woodward pointed out that synthesis has provided a matrix for discovery of new reactions, and from this discovery has come new understanding. Woodward's comments hold true today as is evident from reading the exciting contributions contained herein. Clearly, natural product synthesis continues to offer a remarkably fertile territory for creative study, not only in the invention of reactions, but as a rigorous test of the scope and efficiency of new methodology. Increasingly, those involved in the field of synthesis are exploring the pharmacological properties of their targets; from these endeavors, we will likely reap numerous rewards in understanding the connection between chemistry and biology.

The articles contained in this issue represent some of the most exciting advances in contemporary organic and bioorganic chemistry. The source of inspiration for natural product synthesis is, of course, the molecule itself, and so the first scientific paper is the description of a group of new polyoxygenated steroids. Following this, the creative total syntheses of structurally diverse natural products ranging in complexity from monocyclic sulfones and ethers to bicyclic, alkaloids, ethers and lactones to macrocyclic esters and amides to polycyclic alkaloids, polyethers and terpenes are described in rich detail. Other reports outline recent progress toward the syntheses of complex targets. The development of new chemistry is central to each of these accounts: for example, new variations of Diels–Alder and dipolar cycloadditions, aldol and Mannich reactions, metal-catalyzed C–H insertions, and ring closing metathesis are employed as key steps in some of the synthetic efforts. Useful methods for effecting macrocyclizations, anionic polycyclizations, hydrosilylations, carbonyl olefinations, and pinacol-terminated Prins cyclizations are also presented in the context of natural product synthesis. Interesting applications of multicomponent and solid phase synthesis as well as of the use of solid supported reagents are reported, as are methods for the regioselective benzoylation of sugars and the dimetalation of carbenes. Organic chemists are in constant search of new catalysts to effect selective transformations, and the last paper in this issue reveals how directed evolution of enzymes may be used to generate catalysts having novel properties.

The contributions to this Symposium-in-Print are representative of the wide range of activities that are conducted within the general arena of natural product synthesis. Although the molecules themselves continue to provide a scientific focus, one of the primary objectives of such target-directed synthesis remains as it was in 1968—a matrix for discovering new reactions and developing a better understanding of organic chemistry in all of its manifestations. There are, of course, problems that remain unsolved or unidentified, and these will provide fruitful fields for exploration and discovery in the future.

Harry H. Wasserman
Department of Chemistry, Yale University, New Haven, CT 06511, USA

Stephen F. Martin
Department of Chemistry and Biochemistry, The University of Texas at Austin, Austin, TX 78712, USA
E-mail address: sfmartin@mail.utexas.edu

0040–4020/02/$ - see front matter
PII: S0040-4020(02)00623-3