

Additions and Corrections

Stereochemical Control of Hairpin Formation in β -Peptides Containing Dinipecotic Acid Reverse Turn Segments

[*J. Am. Chem. Soc.* **2000**, *122*, 3995–4004]. YOUNG JUN CHUNG, BAYARD R. HUCK, LAURIE A. CHRISTIANSON, HEATHER E. STANGER, SUSANNE KRAUTHÄUSER, DOUGLAS R. POWELL, AND SAMUEL H. GELLMAN*

Page 4002, right column, 3rd full paragraph, 2nd line: (1*R*)-(+)-10-Camphorsulfonic acid should be replaced by (1*R*)-(–)-10-Camphorsulfonic acid.

Page 4002, right column, 4th full paragraph, 1st and 2nd lines: (1*R*)-(+)-10-camphorsulfonic acid should be replaced by (1*R*)-(–)-camphorsulfonic acid.

Page 4003, left column, 1st full paragraph, 2nd line: (1*R*)-(+)-10-camphorsulfonic acid should be replaced by (1*S*)-(+)-10-camphorsulfonic acid.

The authors thank Tony Tang of the University of California–Berkeley for pointing out these typographical errors.

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Attenuating and Supplanting Nonclassical Stabilization: Cr(CO)₃-Complexed Benzonorbornenyl Cations

[*J. Am. Chem. Soc.* **2000**, *122*, 7136–7137]. DEAN J. TANTILLO, BRUCE N. HIETBRINK, CRAIG A. MERLIC,* AND K. N. HOUK*

Page 7136, Scheme 1: Due to a discrepancy between B3LYP/DZVP2+ energies calculated using Gaussian 94 and Gaussian 98, the energetics of equations iii and iv are incorrect. Equation iii should have $\Delta E = -4.2$ kcal/mol, and equation iv should have $\Delta E = -0.1$ kcal/mol. The conclusions of this study are unaffected by these changes.

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Book Reviews *

Supramolecular Polymers. Edited by Alberto Ciferri (University of Genoa, Italy). Dekker: New York. 2000. x + 688 pp. \$195.00. ISBN 0-8247-0252-2

Supramolecular Polymers is one of several important new books dealing with the realm of “chemistry beyond the molecule” (Lehn, J.-M., in *Supramolecular Chemistry—Concepts and Perspectives*; VCH: Weinheim, 1995; p 5). Contributions from notable researchers make this treatise a required reference for persons interested in this rapidly expanding arena. Unlike many books that are a compilation of chapters by many various authors, Prof. Ciferri has elegantly organized the progression of the text to lead the reader from an initial discussion of the concepts and theoretical approaches of supramolecular polymerizations through the current synthetic routes to these novel materials. The coordination of the text is remarkable.

The book is organized into five parts. Part 1, General Formalisms and Theoretical Aspects, features the chapter “Supramolecular Polymerization Mechanistic Aspects” (Ciferri) that delineates, for example, forces that assist in supramolecular assembly, such as Coulombic and van der Waals interactions, and provides examples of structures incorporating these attractions. Chapter 2, “Theoretical Concerns of Liquid Crystals” (Hentschke and Fodi), is a mathematical analysis of LC phase behavior, whereas Chapter 3, “Design Criteria for Polymeric versus Monomeric Amphiphiles” (Halperin), affords insight into self-

assembly of such structures as diblock copolymers and amphiphiles. These first three chapters provide a good foundation for the rest of the book, which is primarily concerned with synthetic approaches and physicochemical properties.

Part 2, Linear, Planar, and Three-Dimensional Reversible Self-Assemblies, begins with the chapter “Hydrogen-Bonded Supramolecular Polymers” (Corbin and Zimmerman), which overviews designed donor–acceptor interactions leading to classical, branched, and monolayer networks. Basic principles and applications of crystalline bacterial cell surface layers, or S-layers, composed of arrays of proteinaceous subunits are described in Chapter 5 (Sleytr, Sára, and Pum), which is followed by the chapters “Assemblies in Complex Block Copolymer Systems” (Abetz) and “Microstructure and Crystalization of Rigid-coil Comblike Polymer and Block Copolymers” (Loos and Muñoz-García).

Assemblies Stabilized by Covalent Bonds is the subject of Part 3. The first chapter in this section, “Polymers with Intertwined Superstructures and Interlocked Structures” (Raymo and Stoddart), describes the construction and properties of mechanically connected molecular rings and axles that constitute the design and creation of macromolecular polyrotaxanes and polycatenanes. The next chapter, “Dendrimeric Supramolecular and Supramacromolecular Assemblies” (Tomalia and Majoros), provides an excellent review of the characterization and uses of these novel branched architectures. “Self-Assembled Monolayers and Synthesis of Planar Micro- and Nanostructures” (Yan, Huck, and

*Unsigned book reviews are by the Book Review Editor.

Whitesides) rounds out this section with a treatise on the preparation of patterned thin films.

Chapter 11, "Architecture and Applications of Films Based on Surfactants and Polymers" (Shimomura), provides the reader with an understanding of crystal engineering of immobilized bilayer membranes and their use to form layered polymer composites. The use of two-dimensional DNA assemblies as functional materials is also described, along with mesoscopic pattern formation. "Supramolecular Polyelectrolyte Assemblies" (Arys, Jonas, Laschewsky, and Legras) and "Functional Polymer Brushes" (Rühe and Knoll) continue the discussion of film and multilayer formation and patterning. These three chapters constitute Part 4, Engineered Planar Assemblies.

The final section of the book, Conclusions and Outlook is composed of two chapters, entitled "Supramolecular Polymer Chemistry—Scope and Perspectives" (Lehn) and "Protein Polymerization and Polymer Dynamics Approach to Functional Systems" (Oosawa). Both chapters skillfully guide the reader through the techniques and parameters used in the creation of supramolecular polymeric architectures via assembly of designed building blocks as well as natural monomers such as actin, a muscle protein. This is accomplished via a review of current literature.

I would recommend this text to anyone working in any area of material science not only because it is useful as a reference resource, but also because it has the potential to expand and enlighten one's own process for thinking about chemistry.

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Chiral Catalyst Immobilization and Recycling. Edited by D. E. De Vos, I. F. J. Vankelecom, and P. A. Jacobs (Katholieke Universiteit Leuven, Belgium). Wiley-VCH: Weinheim. 2000. xx + 320 pp. \$125.00. ISBN 3-527-29952-1.

There is an increasing need for the application of single enantiomers of chiral compounds in pharmaceuticals, agrochemicals, flavors, and fragrances. Among the various methods to produce selectively a single enantiomer of a chiral compound, enantioselective catalysis appears to be the most attractive method. Large amounts of pure enantiomers can be produced using a minute amount of a usually expensive chiral auxiliary. Immobilization of the chiral catalyst in a phase different (liquid or solid) from the phase of the chemical reaction facilitates separation of pure products and recovery of the chiral catalyst.

This book consists of 12 chapters written by a total of 28 authors with diverse academic and industrial affiliations from a variety of countries. In the introductory chapter, H.-U. Blaser and his colleagues from SOLVIAS (formerly Ciba-Geigy in Basel, Switzerland) give a broad perspective of enantioselective heterogeneous catalysis from both academic and industrial points of view. The next four chapters provide general approaches to the immobilization and recovery of enantioselective catalysts. In Chapter 2, I. F. J. Vankelecom and P. A. Jacobs (Katholieke Universiteit Leuven, Belgium) describe the major types and uses of inorganic catalyst supports, whereas in Chapter 3, D. E. Bergbreiter (Texas A&M University, USA) provides the organic polymer counterpart. The focus in these chapters is on the availability and preparation of the support materials and on the strategies for the immobilization of enantioselective catalysts. In Chapter 4, B. E. Hanson (Virginia Polytechnic Institute and State University, USA) addresses liquid biphasic catalysis. In this chapter, specific issues are discussed, such as the ligand modifications that are required to confine a soluble catalyst to a single liquid phase. In Chapter 5, P. Raser (Roche Diagnostics, Germany) discusses enzyme catalysis with a focus on economical reuse of enzymes.

Hydrogenations over modified metallic surfaces are discussed in the next three chapters. In Chapter 6, P. B. Wells and R. P. K. Wells (Cardiff University, Wales, UK) provide a comprehensive overview of the present understanding of alkaloid-modified palladium and platinum metals. In Chapter 7, A. Baiker (ETH-Zürich, Switzerland) highlights strategies that can lead to the rational design of new synthetic chiral modifiers for platinum hydrogenation catalysts, and in Chapter 8, A. Tai and T. Sugimura (Himeji Institute of Technology, Japan) discuss the modification of nickel-metal catalysts for enantioselective hydrogenation.

Other specific reactions are covered in the remaining chapters. In Chapter 9, D. J. Bayston and M. E. C. Polywka (Oxford Asymmetry

International, UK) discuss the use of immobilized chiral phosphine ligands for enantioselective hydrogenations and hydroformylations. In Chapter 10, P. Salvadori and his colleagues from the University of Pisa (Italy) review catalytic heterogeneous enantioselective dihydroxylation and epoxidation, including Sharpless and Jacobsen type reactions. In Chapter 11, D. Brunel and his colleagues from the École Nationale Supérieure de Chimie (Montpellier, France) describe the variety of heterogenized, enantioselective catalysts that can be used to create new carbon-carbon bonds. In the final chapter of the book, D. E. de Vos, M. De Bruyn, V. I. Parvulescu, F. G. Cocu, and P. A. Jacobs (Katholieke Universiteit Leuven and the University of Bucharest, Romania) discuss heterogeneous diastereoselective synthesis, which sometimes presents an economically attractive alternative to enantioselective synthesis.

This book provides a useful account of the diverse approaches that have been used to develop immobilized chiral catalysts for the asymmetric synthesis of pure enantiomers and includes extensive literature citations at the end of each chapter, with many references as recent as 1999. The book is well produced, except for inconsistencies in the style of the literature references from chapter to chapter. A subject index is provided (14 pages). This book is recommended to industrial and academic scientists concerned with the synthesis of pure enantiomeric molecules including chiral pharmaceuticals.

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Capillary Electrophoresis of Nucleic Acids. Volume 1. Introduction to the Capillary Electrophoresis of Nucleic Acids. Methods in Molecular Biology 162. Edited by Keith R. Mitchelson (University of Queensland, Brisbane, and Walter & Eliza Hall Institute, Parkville, Australia) and Jing Cheng (Tsinghua University, Beijing, and Aviva Biosciences Corp., San Diego). Humana Press: Totowa, NJ. xx + 484 pp. \$125.00. ISBN 0-89603-779-7

This first volume of the two-volume set introduces the reader to the use of capillary electrophoresis to analyze small oligonucleotides and modified nucleotides. The contents are organized into six distinct sections: Analytical Considerations for Capillary Electrophoresis; Capillary Matrix: Considerations for Capillary Electrophoresis; Electrophoresis Matrix: Applications for DNA Fragment Sizing; Practical Applications for Large DNA Fragment Sizing and Fragment Collection; Practical Applications for Oligonucleotide and Nucleotide Analysis; and Practical Applications for Analysis of Environmental Damage and Cellular Metabolism of DNA. The integration of capillary electrophoresis and mass spectrometry and microdevice capillary electrophoresis methods are also discussed. Like other books in the *Methods in Molecular Biology* series, most chapters contain an introduction, a materials and step-by-step methods section, an extensive reference list, and a very helpful notes section that offers tips on techniques and troubleshooting advice.

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Bioorganic Chemistry: Highlights and New Aspects. Edited by U. Diederichsen (TU München), T. K. Lindhorst (Universität Hamburg), B. Westermann (Universität -GH Paderborn), L. A. Wessjohann (Vrije Universiteit Amsterdam). Wiley-VCH: Weinheim. 1999. xxviii + 440 pp. \$79.95. ISBN: 3-527-29665-4

This book provides reviews of recent advances in bioorganic chemistry, written by more than 60 scientists with expertise in biochemistry, medicinal chemistry, and organic chemistry. The chapters are organized into the following seven sections: natural products and drug research; enzymatic synthesis and biotransformation; carbohydrate chemistry and glycobiology; peptide chemistry and applications; nucleic acid chemistry: mechanisms and mimetics; biosynthetic pathways and biochemistry; and physical and analytical methods. Many of the articles and scientific collaborations had their origins in the free discussions encouraged by the Clausthal forums, until recently held annually in Clausthal-Zellerfeld, Germany.

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