

The Organic Chemistry of Sugars

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Intrigued as much by its complex nature as by its outsider status in traditional organic chemistry, the editors of **The Organic Chemistry of Sugars** compile a groundbreaking resource in carbohydrate chemistry that illustrates the ease at which sugars can be manipulated in a variety of organic reactions.

Each chapter contains numerous examples demonstrating the methods and strategies that apply mainstream organic chemistry to the chemical modification of sugars. The book first describes the discovery, development, and impact of carbohydrates, followed by a discussion of protecting group strategies, glycosylation techniques, and oligosaccharide syntheses. Several chapters focus on reactions that convert sugars and carbohydrates to non-carbohydrate molecules including the substitution of sugar hydroxyl groups to new groups of synthetic or biological interest, cyclitols and carbasugars, as well as endocyclic heteroatom substitutions. Subsequent chapters demonstrate the use of sugars in chiral catalysis, their roles as convenient starting materials for complex syntheses involving multiple stereogenic centers, and syntheses for monosaccharides. The final chapters focus on new and emerging technologies, including approaches to combinatorial carbohydrate chemistry, the biological importance and chemical synthesis of glycopeptides, and the medicinally significant concept of glycomimetics.

Presenting the organic chemistry of sugars as a solution to many complex synthetic challenges, **The Organic Chemistry of Sugars** provides a comprehensive treatment of the manipulation of sugars and their importance in mainstream organic chemistry.

Daniel E. Levy, editor of the *Drug Discovery Series*, is the founder of DEL BioPharma, a consulting service for drug discovery programs. He also maintains a blog that explores organic chemistry.

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Editorial Review

Review
Although almost every author notes that his or her chapter is not an exhaustive analysis, each does provide an excellent, broad scope of what has been done and what is possible to do within the subfield. A must for both synthetic organic and carbohydrate chemists…Highly recommended.
-L.J. Liotta, CHOICE, April 2006
The title, The Organic Chemistry of Sugars, is very appropriate and is unique among reference works in that regard. …The book…will prove indispensable to the practicing carbohydrate chemist and any organic chemist who chooses to delve into the synthesis of carbohydrate compounds.
-David C. Baker, Journal of the American Chemical Society, Vol. 128, No. 42, 2006

Numerous examples throughout the volume provide excellent illustrative material to support the detailed information presented in the text. In conclusion, this comprehensive volume would be highly useful to all persons working in this area. It may not only support research and development but also be suitable for teaching.
- Parmjit S. Panesar, Chembiotech Laboratories, University of Birmingham, UK in Carbohydrate Polymers, Vol. 64, 2006

Each chapter starts with an introduction that allows nonspecialists to also find a way of approaching the subject. ...The contributions, all written by well-known researchers, are well coordinated with each other and cover most aspects of synthetic sugar chemistry. ...The content of the book is easily accessible through the detailed table of contents as well as the index. ...The book is highly recommended for the carbohydrate chemist [as well as] those wishing to become one.
- Valentin Wittmann, University of Konstanz, Germany, in Angewandte Chemie, Vol. 45, No. 21, May 2006

...chapters on 'Sugars as Starting Materials in Synthesis' and Asymmetric Synthesis of Monosaccharides' are well worth reading. ...Overall, this is an excellent compendium...
- Organic Process Research & Development

...Provides a comprehensive treatment of the manipulation of sugars and their importance in organic chemistry.
- International Food Information Service

This 870-page book exclusively addresses the synthetic aspects of carbohydrate chemistry and is a must for any practicing carbohydrate chemist as central source of reading and reading material. …one of the most readable and comprehensive volumes on synthetic carbohydrate chemistry that I have read. The fact that it pays due attention to the application(s) of carbohydrates in mainstream organic synthesis also makes it a valuable resource for the more classical synthetic organic chemist.
- Biochemist e-volution

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