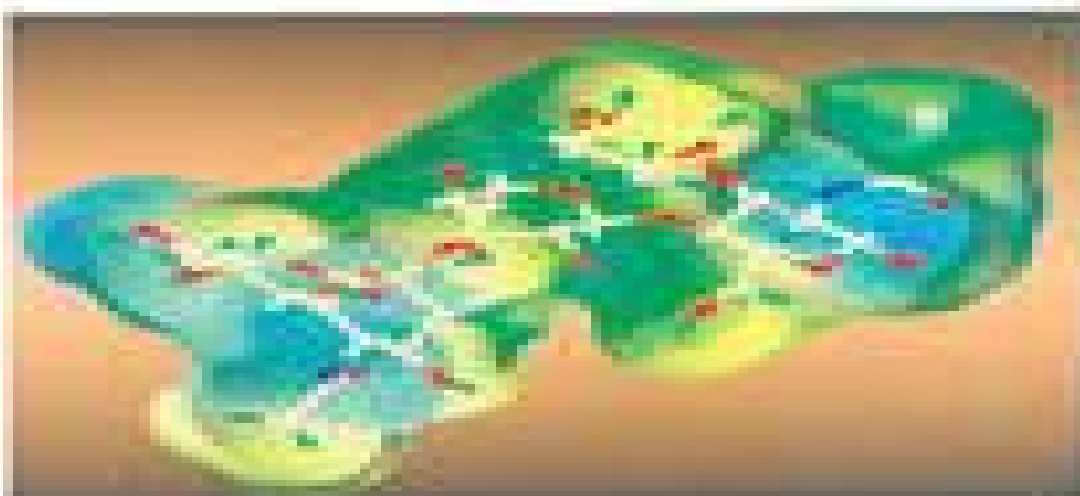


# MODERN METHODS IN CARBOHYDRATE SYNTHESIS



edited by  
Shahver H. Khan  
and  
Roger A. O'Neill

WILEY-INTERSCIENCE

# Modern Methods In Carbohydrate Synthesis

**Arnold E. Stütz**



## **Modern Methods In Carbohydrate Synthesis:**

*Modern Methods in Carbohydrate Synthesis* Shaheer H. Khan, 1996-03-01 *Modern Methods in Carbohydrate Synthesis* presents in one volume a sequence of chapters leading from classical methods through to today's newest state of the art technology for oligosaccharide synthesis. It places particular emphasis on the most recent breakthroughs in the field including emerging technologies for both oligosaccharide and glycoconjugate synthesis. Chapters describing the synthesis of increasingly important glycosidic linkage analogs as well as the oligosaccharides containing derivatives and analogs of natural sugars are included. While chemical synthetic methods constitute the major part of the book, completing the volume is a section on the rapidly expanding and important field of enzymatic synthesis also covering combined chemical and enzymatic synthesis. Chapters are written by leading experts in the field. Wherever possible, methods of synthesis are provided in sufficient detail to allow the reader to implement the techniques described. More than 1700 references are provided in the 21 chapters comprising the book. This volume should provide a wealth of information to a large number of synthetic organic chemists, medicinal chemists, protein chemists, biochemists, glycobiologists and cell biologists including students in these fields.

Glycosciences Hans-Joachim Gabius, Sigrun Gabius, 2008-09-26 A comprehensive survey of the topic ranging from basic molecular research to clinical applications. Critical reviews by leading experts in each field summarize the state of knowledge and discuss the anticipated benefits of novel approaches and strategies. These include the impact of modern analysis techniques on glycobiology, the use of synthetic neoglycoproteins or the clinical consequences of new insights into the physiological role of lectins and glycoconjugates in pathology, oncology, immunity, neuroscience and reproduction medicine. Throughout the aim is to separate realistic applications from mere hopes.

**Modern Synthetic Methods in Carbohydrate Chemistry** Daniel B. Werz, Sebastien Vidal, 2013-09-23 The fields of glycochemistry and glycoscience are rich and varied and where much can be learned from Nature. As Nature is not always able to produce carbohydrates in quantities useful for not only in research but also as therapeutic agents, new ways need to be found to optimize the yield. This book presents an overview of the latest developments in the field of carbohydrates ranging from de novo approaches via cyclodextrin chemistry to the synthesis of such highly complex glycoconjugates as glycosphingolipids and GPI anchors. The main emphasis remains on the synthetic aspects, making the book an excellent source of information for those already involved in carbohydrate chemistry as well as for those organic chemists who are beginners in this field. Equally of interest to synthetic chemists as well as medicinal chemists and biochemists.

**Glycoscience** Arnold E. Stütz, 2003-07-01 This series presents critical reviews of the present position and future trends in modern chemical research. The short and concise reports on chemistry, each written by the world's renowned experts, are still valid and useful after 5 or 10 years.

**Carbohydrates** Robert V. Stick, 2001-03-08 This book is on carbohydrates, the essential molecules that give you energy. They are the building blocks of life. This book delivers up-to-date coverage on all aspects of carbohydrate chemistry. The molecules are sometimes

sugars i.e. sweet hence the subtitle *The Sweet Molecules of Life* Carbohydrates first gives the nuts and bolts of carbohydrate chemistry enabling the reader to appreciate the subsequent chapters on protecting groups and the reactions of monosaccharides The protecting groups do just that they are put on the molecules as a temporary measure during one or more reactions to stop the wrong bit of the molecule being changed during that reaction Introduces the basic chemistry of carbohydrates Describes the concepts protecting groups and reactions of carbohydrates Includes all aspects of the synthesis of the glycosidic linkage Gives an introduction to glycobiology and vaccines Includes references to carbohydrate literature

**Carbohydrate Chemistry, Biology and Medical Applications** Hari G. Garg, Mary K. Cowman, Charles A. Hales, 2011-09-06 The finding by Emil Fischer that glucose and fructose on treatment with phenylhydrazine gave the identical osazone led him to the elucidation of stereochemistry of carbohydrates Since then progress in the field of carbohydrates has been amazing with the unraveling their basic structure biosynthesis immunology functions and clinical uses for pure carbohydrates and for protein linked carbohydrates glycoproteins and proteoglycans The chapters in *Carbohydrate Chemistry Biology and Medical Applications* present a logical sequence leading from the chemistry and biochemistry of carbohydrates followed by their role in various pathological conditions to carbohydrates as potential therapeutic and diagnostic agents This book offers a detailed panoramic review of the chemistry and biology of carbohydrates for chemists biologists and health professionals Each chapter is authored by contributors expert in the particular area of research Explains how carbohydrates are important to life Details the chemistry biology and medical aspects of carbohydrates Interdisciplinary and international team of authors

**Modern Methods of Plant Analysis / Moderne Methoden der Pflanzenanalyse**, 2012-12-06 *Protecting Groups: Strategies and Applications in Carbohydrate Chemistry* Sebastien Vidal, 2019-04-29 A unique overview of the most important protecting group strategies in carbohydrate chemistry *Protecting Groups Strategies and Applications in Carbohydrate Chemistry* provides a detailed account of key strategies and methodologies for the protection of carbohydrates Divided into two parts the first focuses on groups that are used best to protect a specific position on a carbohydrate In the second part specific carbohydrate residues or compounds are discussed in the context of a specific protecting group strategy used to reach the desired regioisomer This important book Features chapters on protecting groups at the primary and secondary positions of carbohydrates Describes protecting group strategies towards sialic acid derivatives glycofuranoses sulfated glycosaminoglycans and cyclodextrins Provides information on automated glycan assembly Includes a chapter on the industrial scale synthesis of heparin analogs Written by a team of leaders in the field *Protecting Groups Strategies and Applications in Carbohydrate Chemistry* is an indispensable guide for academics and industrial researchers interested in carbohydrate and natural product synthesis pharmaceutical chemistry and biochemistry

*Protein Glycosylation* Roslyn M. Bill, Leigh Revers, Iain B.H. Wilson, 1998-11-30 *Protein Glycosylation* provides clear up to date and integrated coverage of key topics in this field Particular emphasis is placed on the

biosynthetic pathways that result in a wide variety of identified protein bound oligosaccharides Protein Glycosylation begins with an overview of the chemical structures of mono and oligosaccharides to provide a scientific basis for the later chapters The book includes discussions on the purification function and enzyme kinetics of selected glycosidases and glycotransferases as well as a review of the roles of oligosaccharides in glycoprotein function and the in vivo role of glycoproteins themselves Finally the in vitro synthesis of glycoproteins is presented together with future directions in glycobiology Protein Glycosylation serves as an excellent text for upper level undergraduate and graduate students as well as a reference for those scientists whose training is not in glycobiology but who are moving into this field **Carbohydrates:**

**The Essential Molecules of Life** Robert V. Stick, Spencer Williams, 2010-08-06 This book provides the nuts and bolts background for a successful study of carbohydrates the essential molecules that not only give you energy but are an integral part of many biological processes A question often asked is Why do carbohydrate chemistry The answer is simple It is fundamental to a study of biology Carbohydrates are the building blocks of life and enable biological processes to take place Therefore the book will provide a taste for the subject of glycobiology Covering the basics of carbohydrates and then the chemistry and reactions of carbohydrates this book will enable a chemist to gain essential knowledge that will enable them to move smoothly into the worlds of biochemistry molecular biology and cell biology Includes perspective from new co author Spencer Williams who enhances coverage of the connection between carbohydrates and life Describes the basic chemistry and biology of carbohydrates Reviews the concepts synthesis reactions and biology of carbohydrates

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