

Preface to the Second Edition

All of the commitments that we expressed in the preface of the 2001 first edition still hold true. The fact that we now introduce a second edition, seven years later, reflects the burgeoning research developments in glycoscience, and the broad impact these developments are having on contemporary biological science. The term "Glycoscience", selected first for a comprehensive collection of reviews a decade ago in *Topics in Current Chemistry*, has become the generally accepted language to describe the interests of scientists at all levels who are involved in research associated with chemistry, chemical biology and the biology of saccharides. Readers of *Glycoscience 2nd Edition* will immediately notice that the editorial board has been supplemented with six younger colleagues of top scientific rank in the glycoscience area. We are happy to have been able to convince:

G. Côté, National Center for Agricultural Utilization and Research, Agricultural Research Service, Peoria, USA;

S. Flitsch, University of Manchester, UK;

Y. Ito, Institute of Physical and Chemical Research (RIKEN), Saitama, Japan;

H. Kondo, Shionogi & Co., Ltd., Osaka, Japan;

S.-I. Nishimura, Hokkaido University, Sapporo, Japan;

B. Yu, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China

to serve as Section Editors.

Their dedicated work in modifying and extending the coverage of the first edition, while maintaining its focus, has resulted in a contemporary appearance. This is particularly true of chapters which cover the bridges that link chemistry to biological chemistry to medicinal chemistry.

On behalf of the Editors and the Section Editors it is our pleasure to extend our gratitude to our dedicated expert colleagues, for their prodigious and scholarly work in updating the chapters. Finally, we are very pleased to note the constant and dedicated support and productive collaboration that we enjoyed with Drs. Marion Hertel and Sylvia Blago, and their highly dedicated editorial staff from Springer, Heidelberg.

January 2008

Bertram O. Fraser-Reid
Kuniaki Tatsuta
Joachim Thiem

Preface to the First Edition

Attempts at understanding of the structure and function of sugars date back to the work of eminent scientists active at the turn of the 19th/20th century. This field of research has developed into today's flourishing area of chemistry and biochemistry of carbohydrates. Over the years major scientific contributions have been associated with this research area and the results have had a strong impact on general chemistry.

At the end of the last century the significance of glycoscience, covering all aspects of the chemistry and chemical biology of carbohydrates and glycoconjugates, increased enormously owing to the challenge of interpreting complex natural processes at the molecular level.

Thus, the purpose of this comprehensive approach is to address and assist a broad readership ranging from graduate students to research scientists involved in glycochemistry and glycobiology, working in areas such as organic chemistry, biochemistry, molecular biology, immunology, and microbiology, as well as pharmaceutical, medicinal, agricultural, food chemistry, etc. The special design of this timely and major modern work on glycoscience is intended to go beyond the collection of specialized reviews. Accordingly, the first general chapters are focussed on principles and methods, giving detailed insight into the current status of structure analysis, synthesis and mechanistic interpretation. Subsequent chapters deal with mono-, oligo-, polysaccharides as well as with the chemistry and chemical biology of glycolipids, glycoproteins, other glycoconjugates and glycomimetics, and they always involve in depth discussion of the biochemical, biological and biomedical background. Because of this presentation, the impact of this collection should be attractive for both specialists, and non-specialists, as well as for newcomers to glycoscience from borderline research areas.

For the editors the task to put together such a comprehensive treatise was feasible only after they could convince the leaders in the fields to contribute and write their chapters with absolute authority. If this work does fulfil the desired purpose of becoming a useful, comprehensive collection in the area of chemistry and chemical biology of glycoscience, many thanks will be due to all of the expert authors.

July 2001

Bertram O. Fraser-Reid
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