Click Chemistry in Glycoscience: New Developments and Strategies
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DESCRIPTION

Lays the foundation for new methods and applications of carbohydrate click chemistry

Introduced by K. Barry Sharpless of The Scripps Research Institute in 2001, click chemistry mimics nature, giving researchers the tools needed to generate new substances quickly and reliably by joining small units together. With contributions from more than thirty pioneering researchers in the field, this text explores the many promising applications of click chemistry in glycoscience. Readers will learn both the basic concepts of carbohydrate click chemistry as well as its many biomedical applications, including synthetic antigens, analogs of cell-surface receptors, immobilized enzymes, targeted drug delivery systems, and multivalent cancer vaccines.

Click Chemistry in Glycoscience examines a broad range of methodologies and strategies that have emerged from this rapidly evolving field. Each chapter describes new approaches, ideas, consequences, and applications resulting from the introduction of click processes. Divided into four sections, the book covers:

• Click chemistry strategies and decoupling
• Thio-click chemistry of carbohydrates
• Carbohydrate click chemistry for novel synthetic targets
• Carbohydrate click chemistry in biomedical sciences
Thoroughly researched, the book reflects the most recent findings published in the literature. Diagrams and figures throughout the book enable readers to more easily grasp complex concepts and reaction processes. At the end of each chapter, references lead to the primary literature for further investigation of individual topics.

The application of click chemistry to carbohydrates has tremendous implications for research. With this book as their guide, researchers have a solid foundation from which they can develop new methods and applications of carbohydrate click chemistry, including new carbohydrate-based therapeutics.

About the Author

Zbigniew J. Witczak, PhD, is Professor in the Department of Pharmaceutical Sciences of the Nesbitt School of Pharmacy at Wilkes University. He has published over ninety research papers and holds six patents. His research focuses on carbohydrate synthons, including levoglucosenone and L-arabinose, as templates for carbohydrate-based therapeutics. In 2000, Dr. Witczak was awarded the Melville L. Wolfrom Award from the ACS Division of Carbohydrate Chemistry.

Roman Bielski, PhD, is Senior Scientist at Value Recovery, Inc., Partner in Cheminnolab, LLC, and Adjunct Professor in the Department of Pharmaceutical Sciences at Wilkes University. His research investigates the origin of homochirality, modification of carbohydrates, solutions to environmental issues, and sustainability. As part of his achievements, Dr. Bielski co-developed a method of enantiomers' resolution, which might have been involved in prebiotic homochirality, since it would not require the use of chiral compounds.

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