What's New?

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Content

New: Click Chemistry

Click chemistry is a discipline that has grown rapidly since the introduction of this term by Barry Sharpless approximately two decades ago. Initially, click reactions mostly involved copper-catalyzed azide–alkyne cycloadditions (CuAAC) and their applications to connect molecules, but gradually new types of click reactions were developed which also allowed a much wider range of applications throughout the chemical, biological, and materials sciences. This volume provides an overview of the most widely used click reactions and their scope and limitations, as well as their uses in bioorthogonal chemistry and other fields. Edited by Floris P. J. T. Rutjes, the volume presents key developments, reviewed by pioneers and leaders in the field, in a readily accessible and practical fashion.

Topics covered include:

- Introduction to CuAAC
  F. F. Ort and F. P. J. T. Rutjes

- CuAAC in Peptidomimetics and Protein Mimics
  T. J. Meuleman and R. M. J. Liskamp

- CuAAC in Protein Conjugation
  A. La Venia, A. Kovalova, and M. Vrabel

- CuAAC in Carbohydrate Conjugation
  A. K. Agrahari, A. Mishra, and V. K. Tiwari

- CuAAC and Metal-Free 1,3-Dipolar Huisgen Cycloadditions in Drug Discovery
  K. M. Kacprzak, I. Skiera, and J. Rutkowski

- CuAAC Applications in Macromolecules, Polymers, Nanoparticles, and Supramolecular Chemistry
  C. Zhang, K. M. Page, and J. C. M. van Hest

- Ruthenium-Catalyzed Azide–Alkyne Cycloaddition (RuAAC)
  A. J. Paterson, T. Beke-Somfai, and N. Kann

- Sydnone-Based Cycloadditions in Click Chemistry
  F. Friscourt

- Strain-Promoted Azide–Alkyne Cycloaddition (SPAAC): Background, Substrate Preparation, and Reactivity
  T. Harris and I. V. Alabugin

- Applications of SPAAC and SPANC in Life Sciences
  L. J. N. Janssen and D. Blanco-Ania

- 1,3-Dipolar Cycloadditions of Alkenes
  D. Svatunek and K. N. Houk

- Sulfur Fluoride Exchange (SuFEx)
  M.-C. Giel, C. J. Smedley, and J. E. Moses

- Thiol–Ene/Yne Click Reactions: A Powerful Tool Toward Diversity-Oriented Synthesis
  A. K. Sinha and R. Singh

- Hybridization of Thiol–Ene Chemistry Hydrogels for Biomedical Applications
  Z. Xu and K. M. Bratlie

- Tetrazine-Based Cycloadditions in Click Chemistry
  W. Kuba, M. Wilkovitsch, J. C. T. Carlson, and H. Mikula