

AbbVie Workshop Series

in Synthetic Organic & Medicinal Chemistry

4:15 p.m. Friday, Nov. 21, 2014, 331 Smith Hall

Professor

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New Cycloaddition Strategies Based on Strained and Unusual Molecules

Research focuses on the development of new synthetic methods and strategies, and their application in the total synthesis of natural products and biologically important compounds. A major thrust of our current research is the design and invention of new cycloaddition and annulation strategies for the synthesis of carbocyclic and heterocyclic compounds.

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Abstract

Highly substituted carbocyclic and heterocyclic rings are key structural features in many biologically significant and commercially important compounds. Although classical synthetic approaches to such compounds have generally relied on linear substitution strategies, convergent cycloaddition and annulation strategies have emerged as powerful alternative methods for the assembly of highly substituted cyclic compounds. The intrinsic convergent nature of cycloaddition and annulation strategies facilitates the efficient assembly of highly substituted systems that would have required long, multistep routes using alternative methods.

This talk will focus on the application of strained and unusual molecules as building blocks in cycloaddition strategies for the construction of complex carbocyclic and heterocyclic compounds. The synthetic utility of highly unsaturated, conjugated molecules such as vinylketenes, conjugated enynes, vinylallenes, allenylimines, and iminoacetonitriles will be described, as well as their application in the total synthesis of natural products.

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Host: Professor Thomas Hoye