

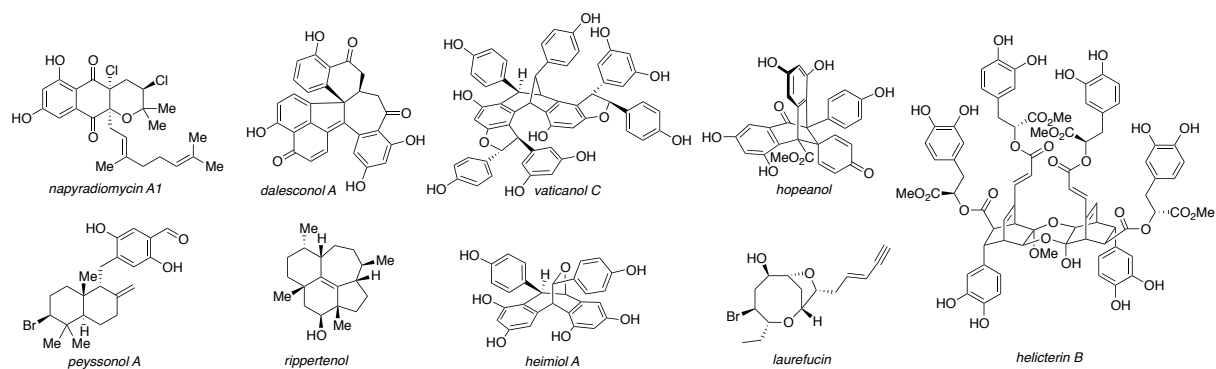
Exploring Chemoselectivity through Natural Product Total Synthesis

Scott A. Snyder

*Columbia University and The Scripps Research Institute
Department of Chemistry
sas2197@columbia.edu*

The total synthesis of natural products has long served as a principal driving force for discovering new chemical reactivity, evaluating physical organic theories, testing the power of existing synthetic methods, and enabling biology and medicine. Indeed, retrosynthetic analysis, carbodiimide-based peptide coupling reagents, cation- π cyclizations, frontier molecular orbital theory, chiral auxiliaries, catalysts for asymmetric reactions, protecting groups, and several designed pharmaceuticals are but a few of the landmark achievements that have derived from its inspirational power. Hundreds of equally important discoveries remain, and our research program seeks to unearth some of those treasures.

This talk will highlight elements of our efforts to utilize targets such as those drawn below as effective sources of chemical inspiration. These endeavors have led to revisions of proposed biosynthetic pathways, new cascade sequences capable of creating significant architectural diversity from common building blocks, novel methods and reagents for achieving asymmetric halogenation and halonium-based cyclizations, and unique contributions to the rich chemistry of the Diels–Alder reaction.



1. S. A. Snyder, S. B. Thomas, A. C. Mayer, S. P. Breazzano. Total Syntheses of Hopeanol and Hopeahainol D Empowered by a Chiral Bronsted-acid Induced Pinacol Rearrangement. *Angew. Chem. Int. Ed.* **2012**, *51*, 4080.
2. S. A. Snyder, D. S. Treitler, A. P. Brucks, W. I. Sattler. A General Strategy for the Stereocontrolled Preparation of Diverse 8- and 9-Membered *Laurencia*-type Bromoethers. *J. Am. Chem. Soc.* **2011**, *133*, 15898.
3. S. A. Snyder, N. E. Wright, J. J. Pflueger, S. P. Breazzano. Total Syntheses of Heimiol A, Hopeahainol D, and Constrained Analogs. *Angew. Chem. Int. Ed.* **2011**, *50*, 8629.
4. S. A. Snyder, A. Gollner, M. I. Chiriach. Regioselective Reactions for Programmable Resveratrol Oligomer Synthesis. *Nature* **2011**, *474*, 461
5. S. A. Snyder, D. A. Wespe, J. Marian von Hof. A Concise, Stereocontrolled Total Synthesis of Rippertenol. *J. Am. Chem. Soc.* **2011**, *133*, 8850.
6. S. A. Snyder, T. C. Sherwood, A. G. Ross. Total Syntheses of Dalesconol A and B. *Angew. Chem. Int. Ed.* **2010**, *49*, 5146.