Personal Copy
P. E. GORMISKY, M. C. WHITE* (UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, USA)
Synthetic Versatility in C–H Oxidation: A Rapid Approach to Differentiated Diols and Pyrans from Simple Olefins

**Palladium-Catalyzed Allylic C–H Oxidation**

![Chemical structure](image)

**Significance:** Pd(II)/sulfoxide-catalyzed allylic C–H oxidations offer a unique approach toward functionalizing simple alkenes. As the authors demonstrated previously with allylic C–H amination (Tetrahedron 2010, 66, 4816; J. Am. Chem. Soc. 2009, 131, 11707), the strategy was applied in the synthesis of anti-1,4-dioxan-2-ones, syn-pyrans, differentiated 1,2-diols, and amino-polyols. These products are highly versatile intermediates in the synthesis of complex polyoxygenated products.

**Comment:** The C–H oxidation proceeds via a serial ligand catalysis mechanism. The reaction is highly chemoselective for terminal alkenes, which is orthogonal to the Sharpless asymmetric dihydroxylation (2). Despite the modest diastereoselectivity reported, the reaction is robust. No stringent conditions were taken to exclude oxygen and water, yet the yields remained unaffected on preparative scales (5, 10 mmol scale). The authors demonstrate the utility of the products with an efficient synthesis of 4, an intermediate in the synthesis of SCH 351448 (L. L. Cheung et al. Org. Lett. 2008, 10, 3101). Also, an iterative approach was applied in the synthesis of 8 from 5.