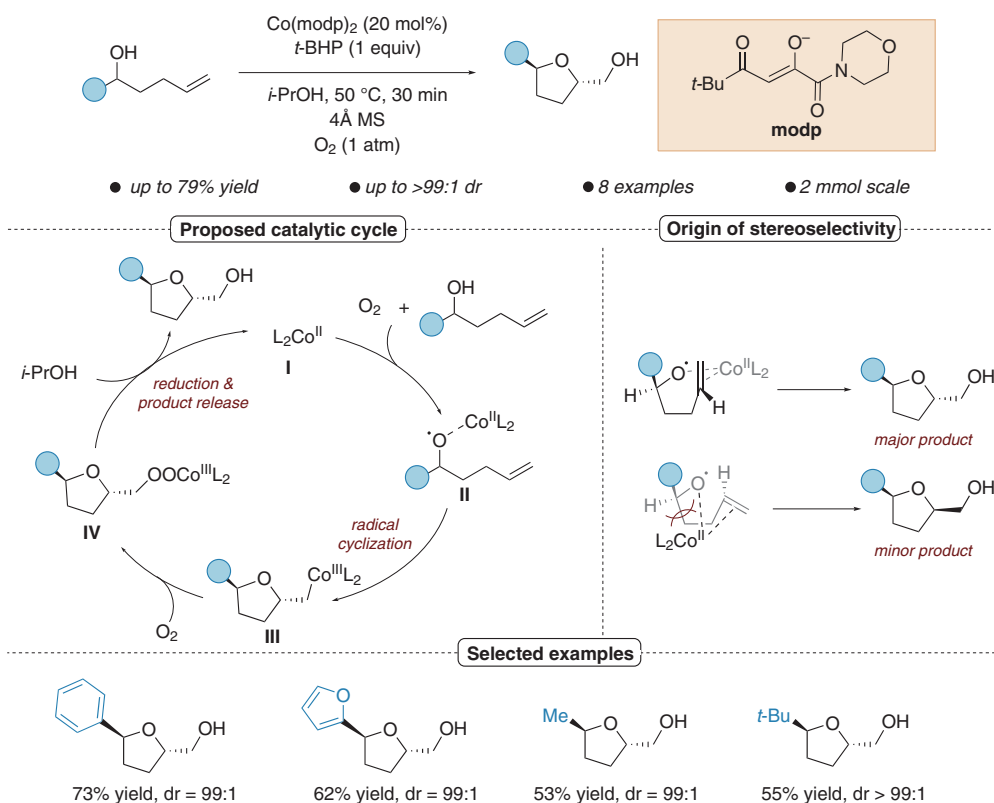


S. INOKI, T. MUKAIYAMA* (MITSUI PETROCHEMICAL INDUSTRIES, LTD., CHIBA, JAPAN)
 A Convenient Method for the Stereoselective Preparation of *trans*-2-Hydroxymethyltetrahydrofurans by the Oxidative
 Cyclization of 5-Hydroxy-1-alkenes with Molecular Oxygen Catalyzed by Cobalt(II) Complex
Chem. Lett. **1990**, 19, 67–70, DOI: 10.1246/cl.1990.67.

Cobalt-Mediated Intramolecular Cyclization of Bis-homoallylic Alcohols under Aerobic Conditions



Significance: Inoki and Mukaiyama report an intramolecular dioxygenation of bis-homoallylic alcohols to achieve a highly diastereoselective synthesis of *trans*-substituted tetrahydrofurans. These oxygenated motifs are found in a wide range of natural products. This methodology and developments have been applied to many synthetic efforts towards complex natural products.

Comment: Under non-optimized conditions Mukaiyama reported that hydroalkoxylation, rather than dioxygenation of the pendant alkene was observed as a significant byproduct via the reduction of **III**. Access to these reduced products and other highly functionalized tetrahydrofurans has been developed by Hartung and co-workers (see: *J. Am. Chem. Soc.* **2009**, 131, 12918; *J. Am. Chem. Soc.* **2011**, 133, 3906) using other radical acceptors.

Category

Metals in Synthesis

Key words

Cobalt catalysis
 oxyfunctionalization
 radical cyclization
 base-metal catalysis

Synfact
 Classic