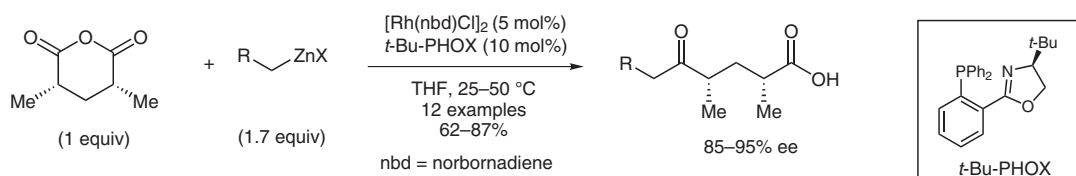
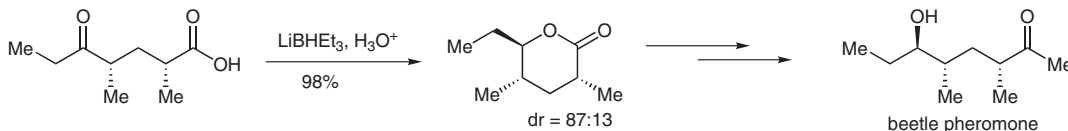
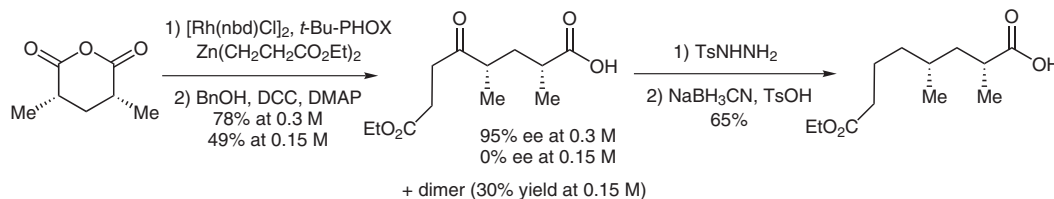
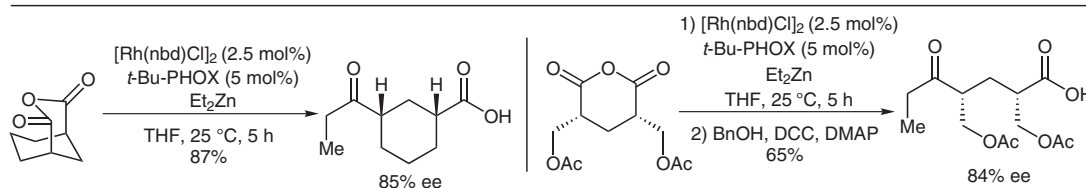


# Rhodium-Catalyzed Enantioselective Desymmetrization



R = H, Me, Et, *n*-Pr,  $\text{CH}_2\text{CH}_2\text{Ph}$ ,  $\text{CH}_2(\text{CH}_2)_2\text{OAc}$ ,  $\text{CH}_2(\text{CH}_2)_4\text{Cl}$ , Ph, 4-MeOC<sub>6</sub>H<sub>4</sub>, 4-MeC<sub>6</sub>H<sub>4</sub>, 4-FC<sub>6</sub>H<sub>4</sub>, 2-Naph



**Significance:** A rhodium-catalyzed enantioselective desymmetrization of various glutaric anhydrides with carbon nucleophiles generates *syn*-deoxypolypropionate synthons in good yields and high ee values. The nucleophiles are commercially available or in situ generated alkyl or benzyl zinc reagents; aryl nucleophiles, however, are not compatible. A good range of alkyl nucleophiles, including those with an ester or chloride moiety, is shown. Electron-rich benzylic nucleophiles result in lower ee values due to a background reaction. Some examples of post-modifications of the product are also provided, including a deoxygenation and a diastereoselective reduction producing an intermediate to the synthesis of a beetle pheromone.

**Comment:** The *syn*-deoxypolypropionate unit is a useful synthon in organic synthesis and the present paper provides a novel method to generate enantioenriched varieties of this unit. One particular example with a zinc homoenolate sheds light on the reaction mechanism. This example gives the desired product and a dimer resulting from isomerization of the nucleophile. The dimer can be reduced at higher concentrations, which suggests that the zinc nucleophile and rhodium interact before addition to the anhydride.