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Catalytic Asymmetric β-Oxygen Elimination
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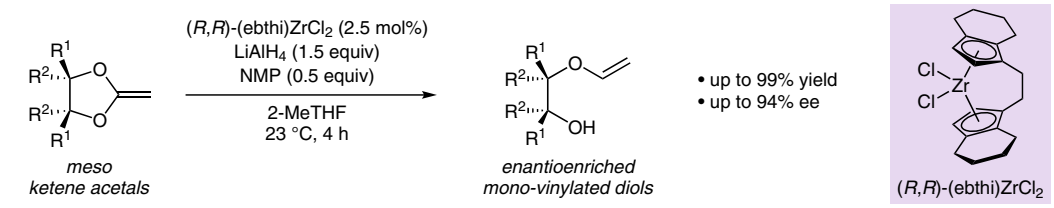
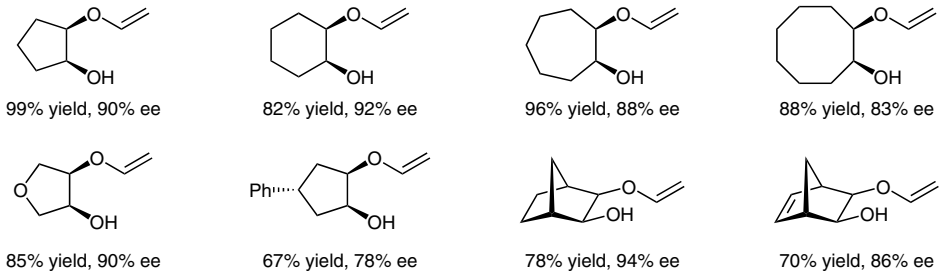
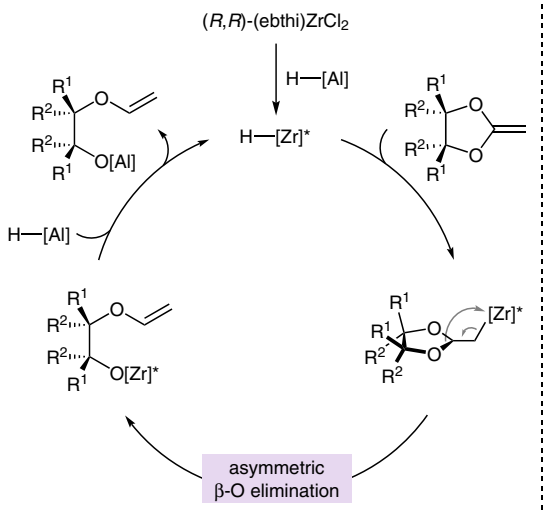
Zirconium-Catalyzed Asymmetric β-Oxygen Elimination for the Desymmetrization of *meso*-Ketene Acetals



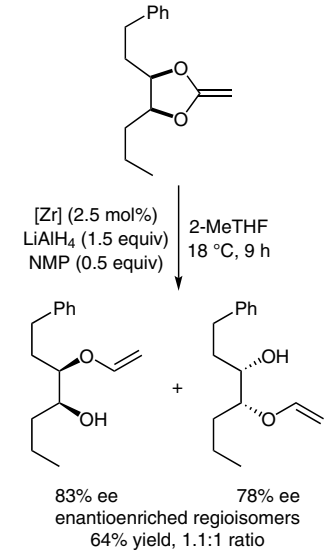
Selected examples:



Proposed mechanism:



Regiodivergent β-O elimination:



Significance: A zirconium-catalyzed strategy for the asymmetric ring-opening of *meso*-ketene acetals through β-oxygen elimination is disclosed. The enantioenriched mono-vinylated *cis*-1,2-diols are furnished in good yields and enantioselectivities.

Comment: A stereochemical analysis of the observed enantioselectivity was performed using DFT calculations. Key steps are both the initial non-symmetry breaking hydrozirconation of the alkene and the asymmetric β-oxygen elimination.

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Category
Metals in Synthesis

Key words
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desymmetrization
diols
meso-compounds
zirconium catalysis

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