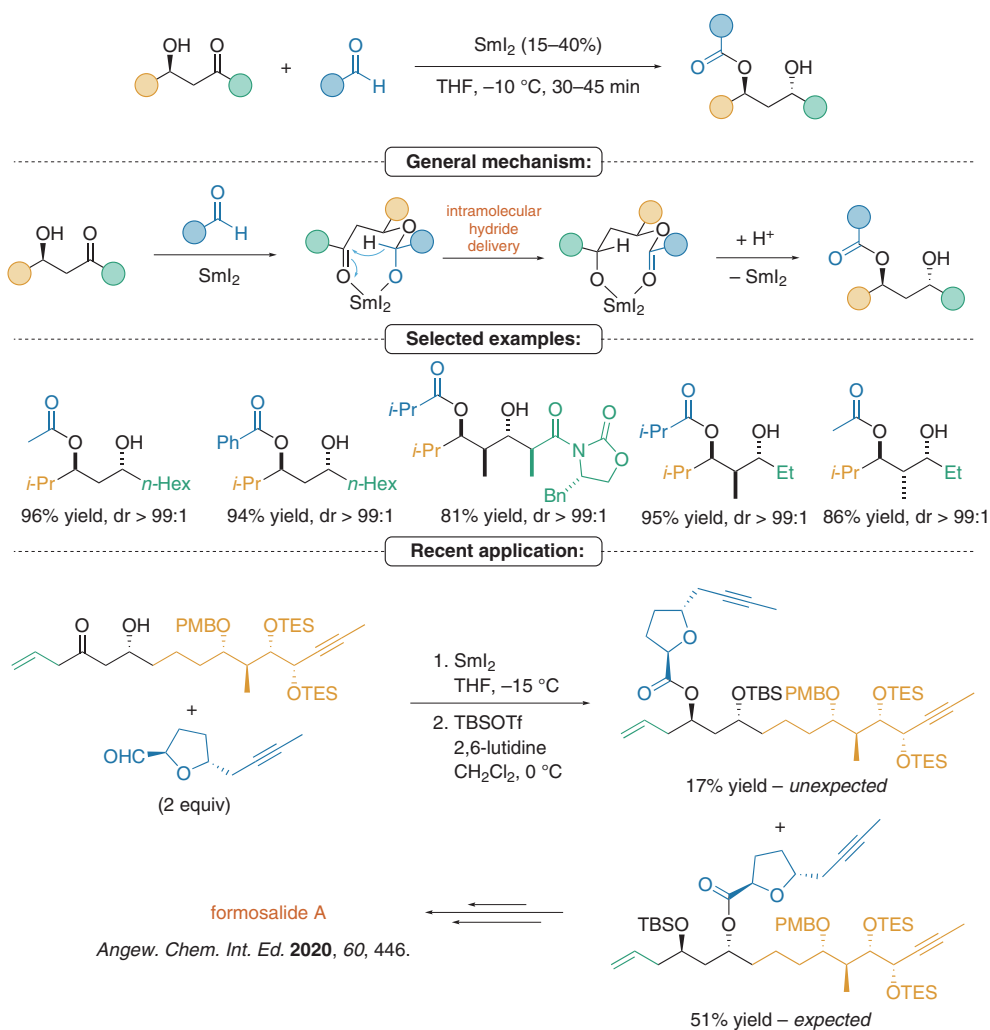


D. A. EVANS*, A. H. HOVEYDA (HARVARD UNIVERSITY, CAMBRIDGE, USA)
 Samarium-Catalyzed Intramolecular Tishchenko Reduction of β -Hydroxy Ketones. A Stereoselective Approach to the Synthesis of Differentiated *anti* 1,3-Diol Monoesters
J. Am. Chem. Soc. **1990**, *112*, 6447–6449, DOI: 10.1021/ja00173a071.

Synthesis of *anti*-1,3-Diols: The Evans–Tishchenko Reaction



Significance: 1,3-Diols are ubiquitous in natural products and bioactive compounds. In 1990, the Evans group reported a highly diastereoselective reduction of β -hydroxy ketones to access *anti*-1,3-diol monoesters. Importantly, this transformation exhibits wide functional group tolerance and operates under very mild conditions. This has led to its widespread adoption in total syntheses (see Review below).

Review: K. J. Ralston, A. N. Hulme *Synthesis* **2012**, *44*, 2310–2342.

SYNFACTS Contributors: Mark Lautens, Colton E. Johnson
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Comment: In the Fürstner synthesis of the formosalides they utilized the Evans–Tishchenko reaction to set a crucial *anti*-1,3-diol. Interestingly, they also observed an acyl transfer in low yield; this transfer was also found when using this reaction on epimeric starting materials to probe the stereochemistry of the formosalides.

Category

Metals in Synthesis

Key words

reduction

stereoselective synthesis

1,3-diols

Evans–Tishchenko reaction

Synfact
Classic

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