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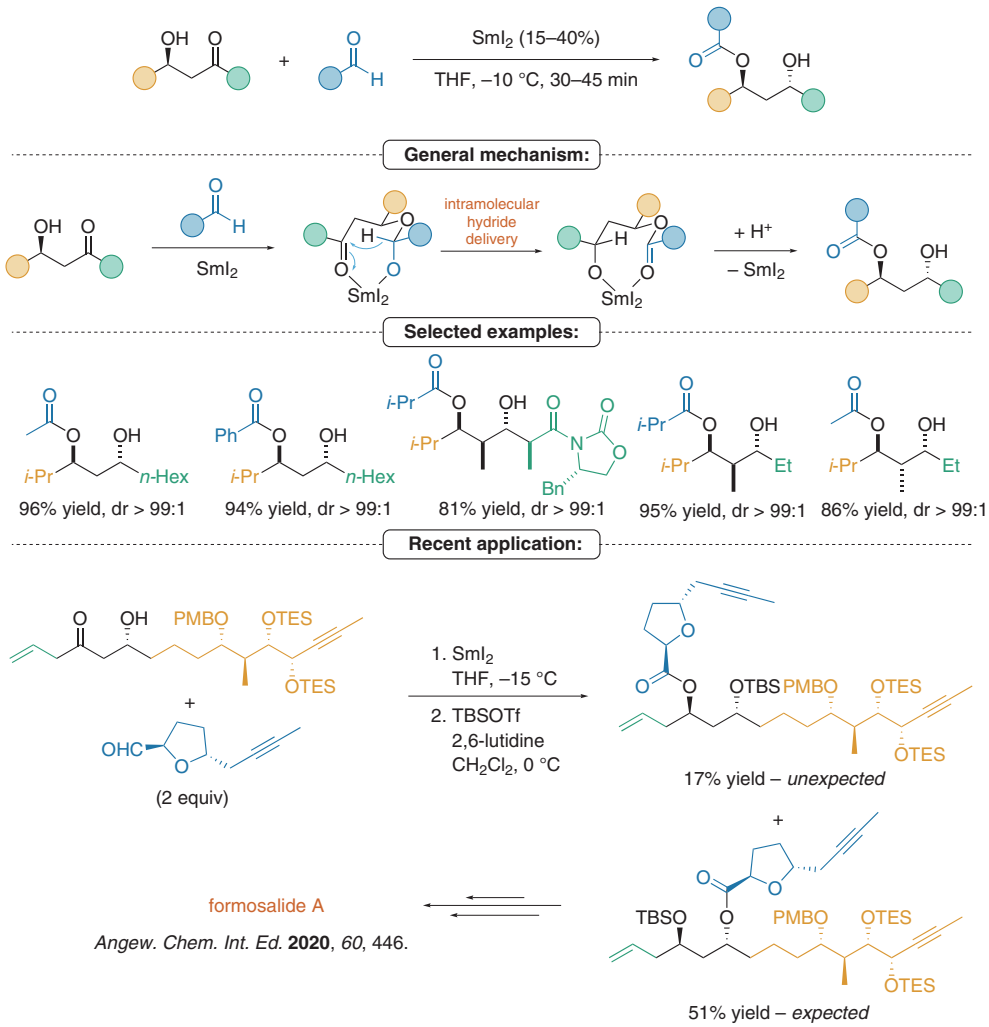
Samarium-Catalyzed Intramolecular Tishchenko Reduction of β-Hydroxy Ketones. A Stereoselective Approach to the Synthesis of Differentiated *anti* 1,3-Diol Monoesters

J. Am. Chem. Soc. **1990**, *112*, 6447–6449, DOI: 10.1021/ja00173a071.

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



Angew. Chem. Int. Ed. **2020**, *60*, 446.

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.

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.

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