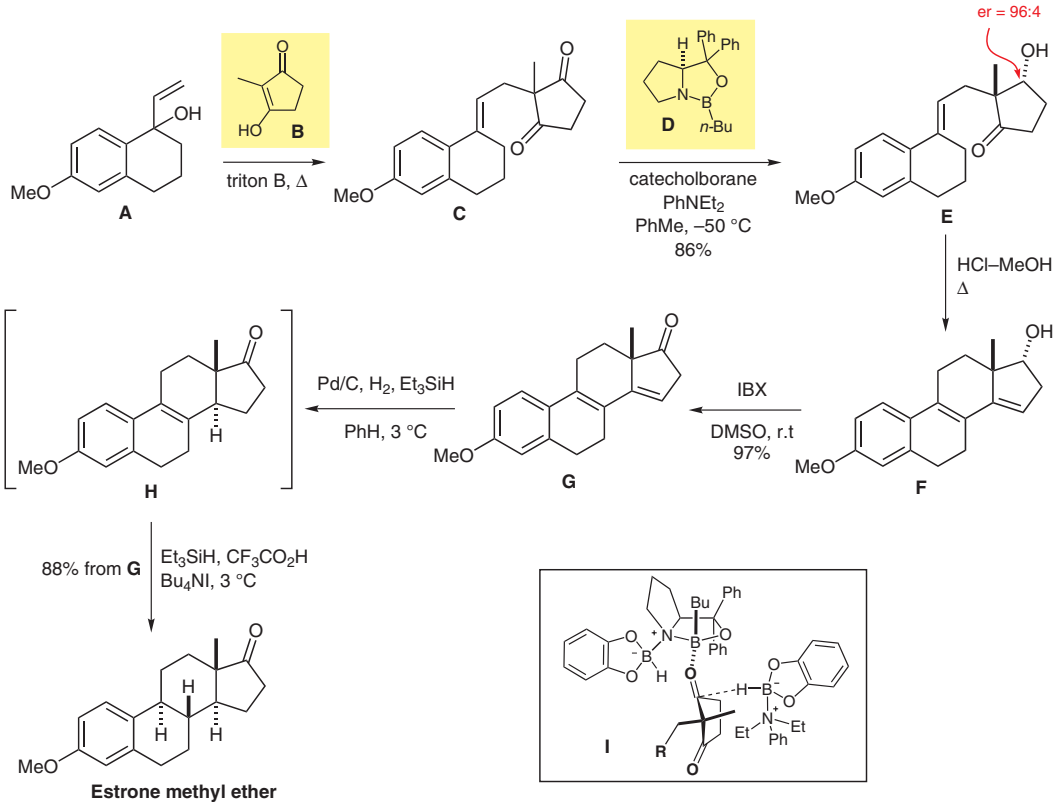
Y.-Y. YEUNG, R. J. CHEIN, E. J. COREY* (HARVARD UNIVERSITY, CAMBRIDGE, USA)

Conversion of Torgov's Synthesis of Estrone into a Highly Enantioselective and Efficient Process
J. Am. Chem. Soc. **2007**, *129*, 10346-10347.

Synthesis of Estrone Methyl Ether



Significance: The short and efficient synthesis of estrone methyl ether reported here is a modified enantioselective version of the Torgov and Ananchenko synthesis (*Tetrahedron Lett*. **1963**, *4*, 1553). Although the key step in the synthesis involved an oxazaborolidine **D**, the reaction proceeded by a different pathway from the CBS reduction, via transition state **I** where the catecholborane-$PhNEt_2$ complex was a hydride donor rather than the oxazaborolidine-catecholborane complex. This method provides a practical alternative to the use of enzymes for reducing cyclic 1,3-diketones.

Comment: Reduction of ketone **C** proceeded with high stereoselectivity via transition state **I** and a single recrystallization afforded **E** in 99% ee. A similar reduction methodology was applied to five other cyclic 1,3-diketones with excellent enantioselectivity. Acidic treatment of alcohol **E** followed by oxidation and then reduction gave estrone methyl ether in good overall yield.

SYNFACTS Contributors: Philip Kocienski, Indu Dager
Synfacts 2008, 1, 0003-0003 Published online: 18.12.2007
DOI: 10.1055/s-2007-991492; **Reg-No.:** K15307SF

2008 © THIEME STUTTGART • NEW YORK

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.