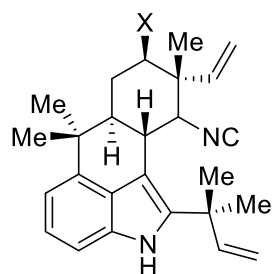


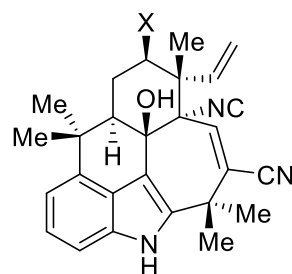
Total Synthesis of (–)-Ambiguine P

Jiasu Xu¹ and Viresh H. Rawal^{1*}

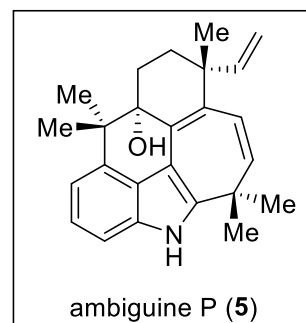
Department of Chemistry, The University of Chicago, Chicago, Illinois 60637, United States



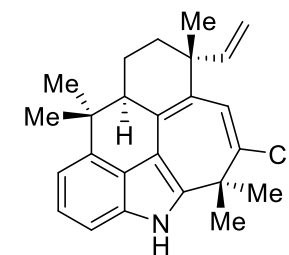
ambiguine A (1); X=Cl
 ambiguine H (2); X=H



ambiguine K (3); X=Cl
 ambiguine L (4); X=H



ambiguine P (5)

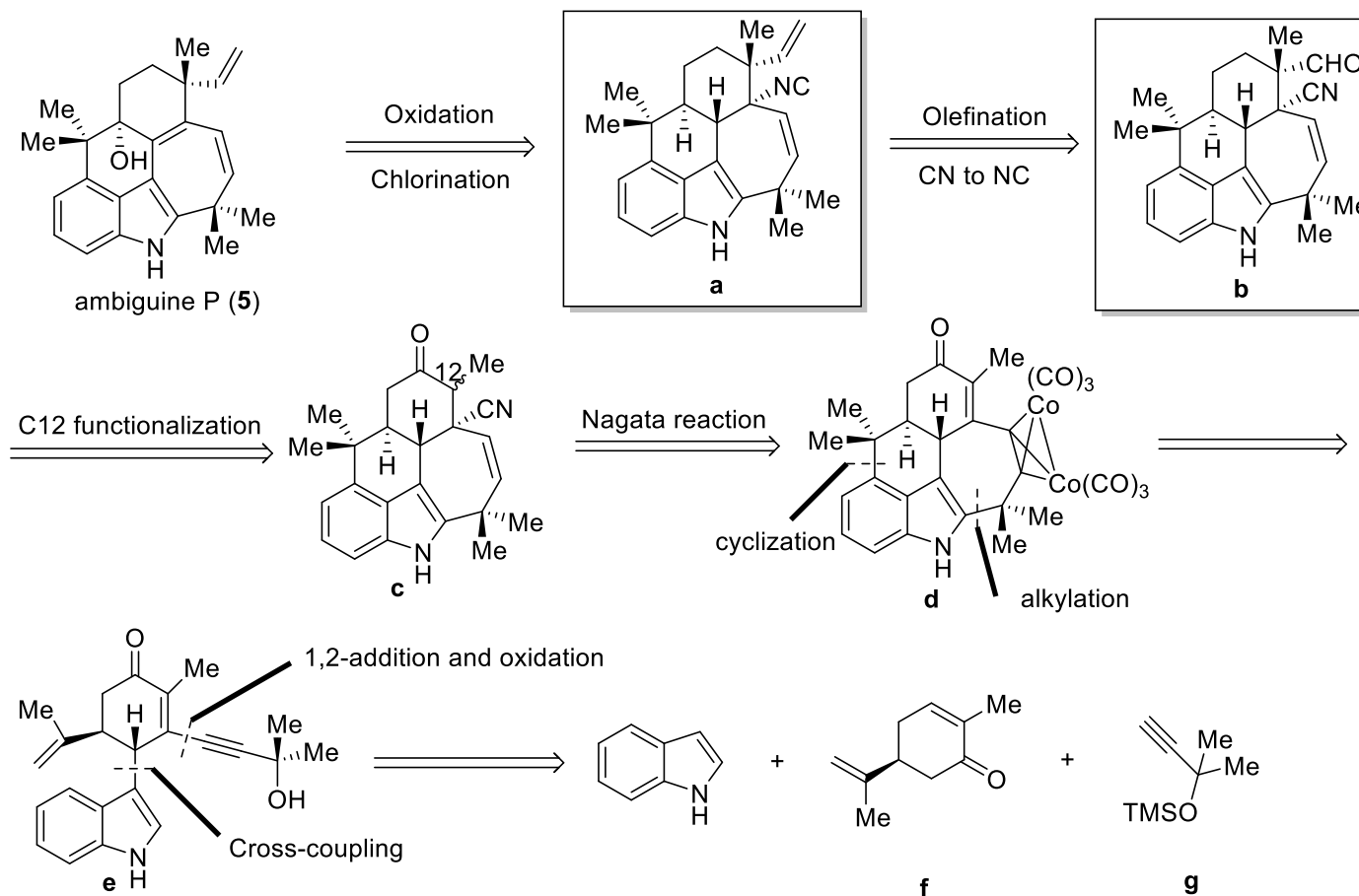


ambiguine Q (6)

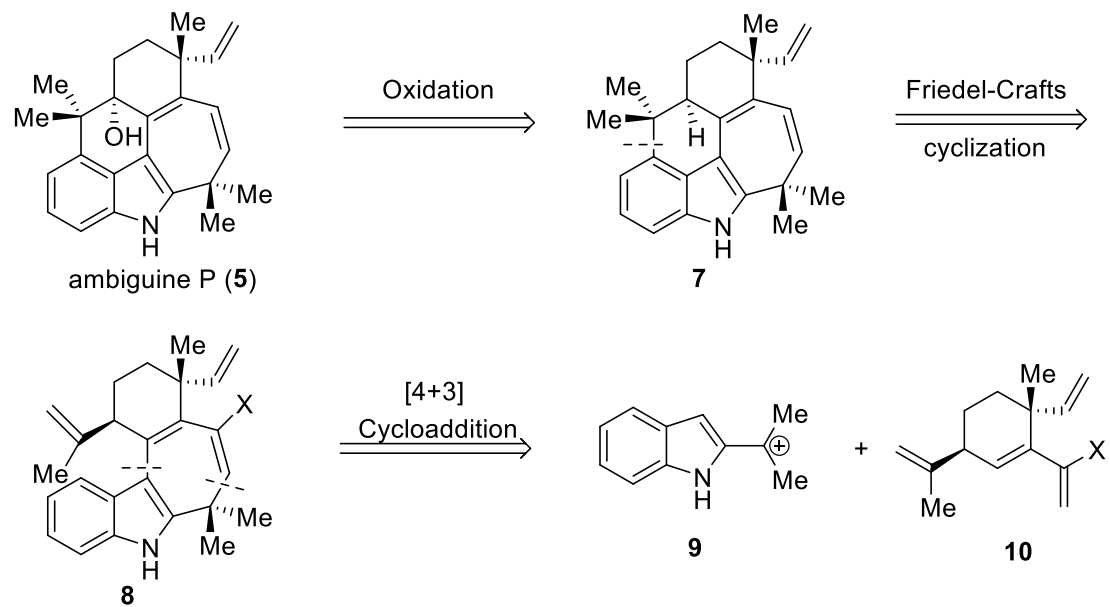
- Ambiguine indole alkaloids were isolated from blue-green algae in 1992 by Smitka, Moore et al.
- Exhibit a broad range of bioactivities including antimycotic, antifungal, and antibiotic properties.
- The total synthesis of Ambiguine P was reported only recently by Sarpong, *JACS*, **2019**, *141*, 2233-22237.

12 Apr 2019, Dr. Min Chen

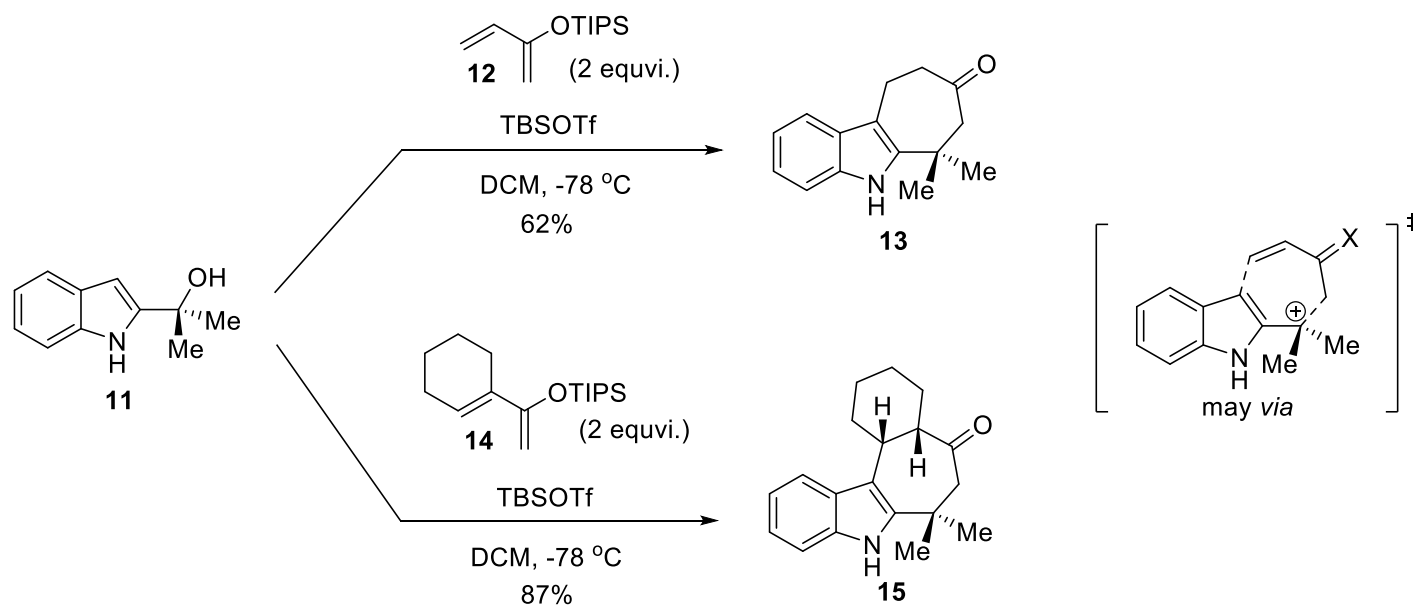
Previous retrosynthetic analysis by Sarpong et al

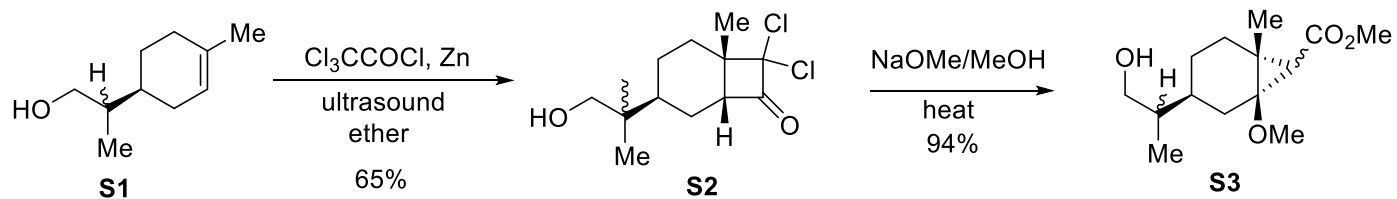


Retrosynthetic analysis

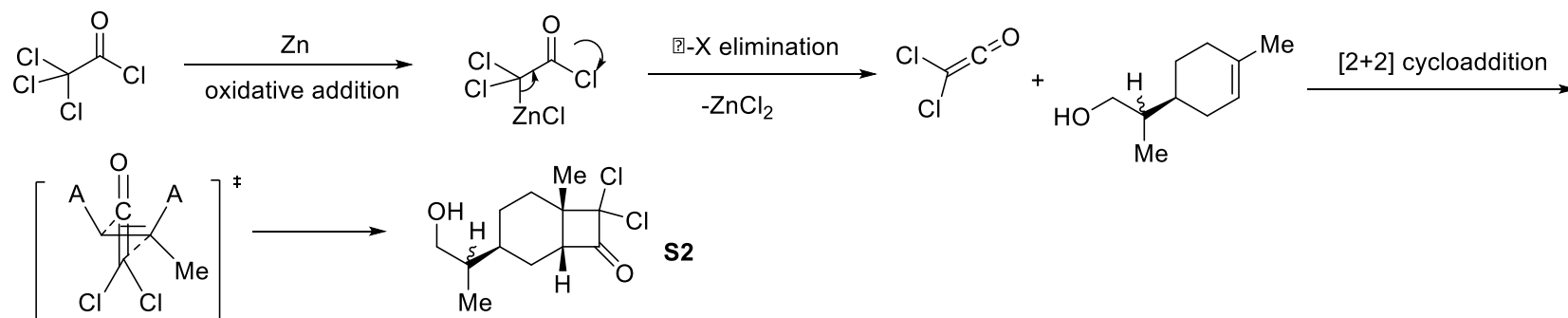


[4+3] Model reaction

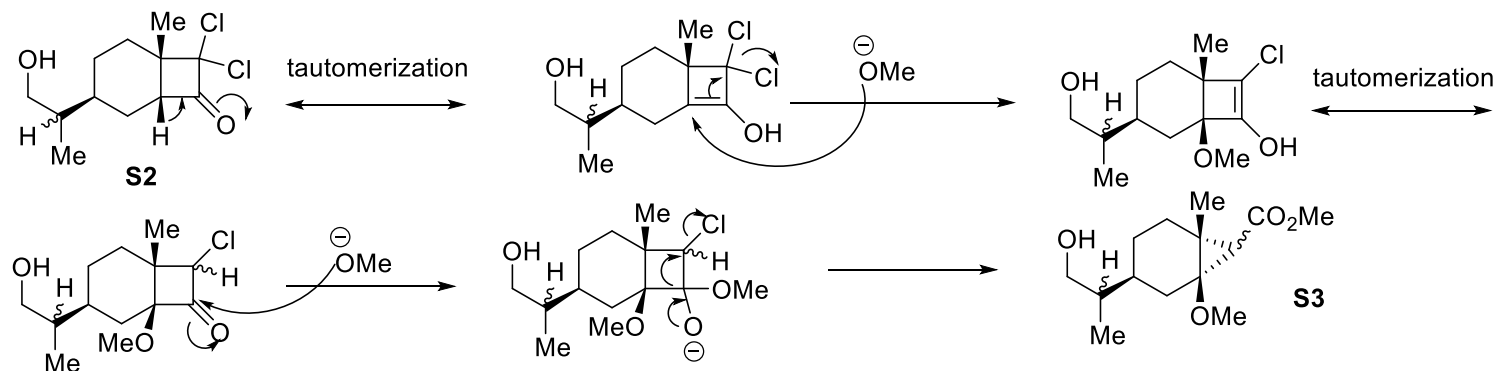


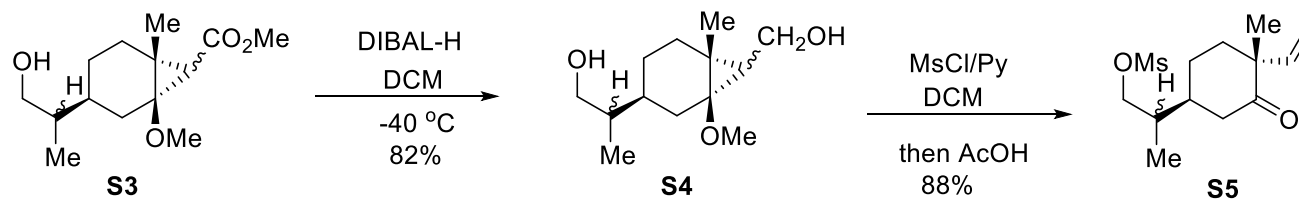


Ketene formation and [2+2] cycloaddition

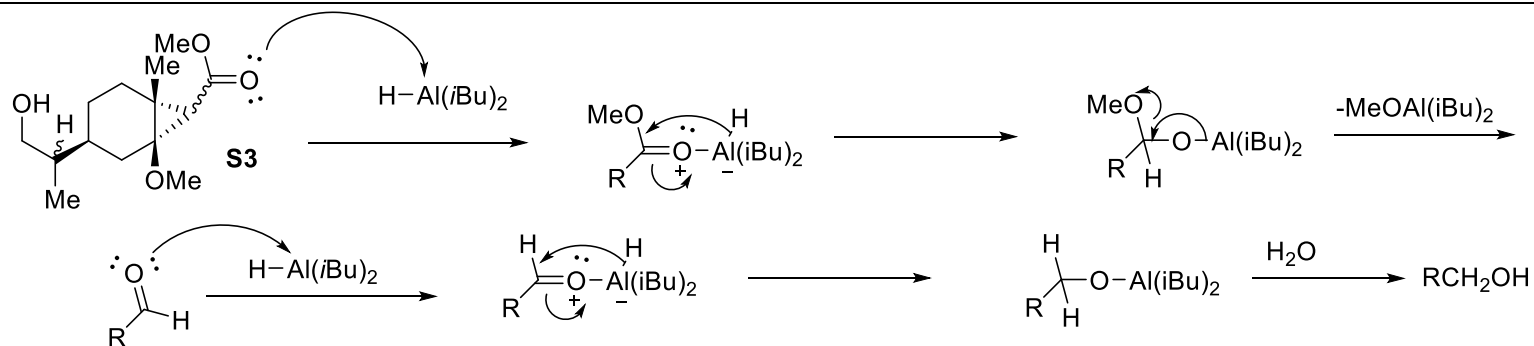


Ring-contraction

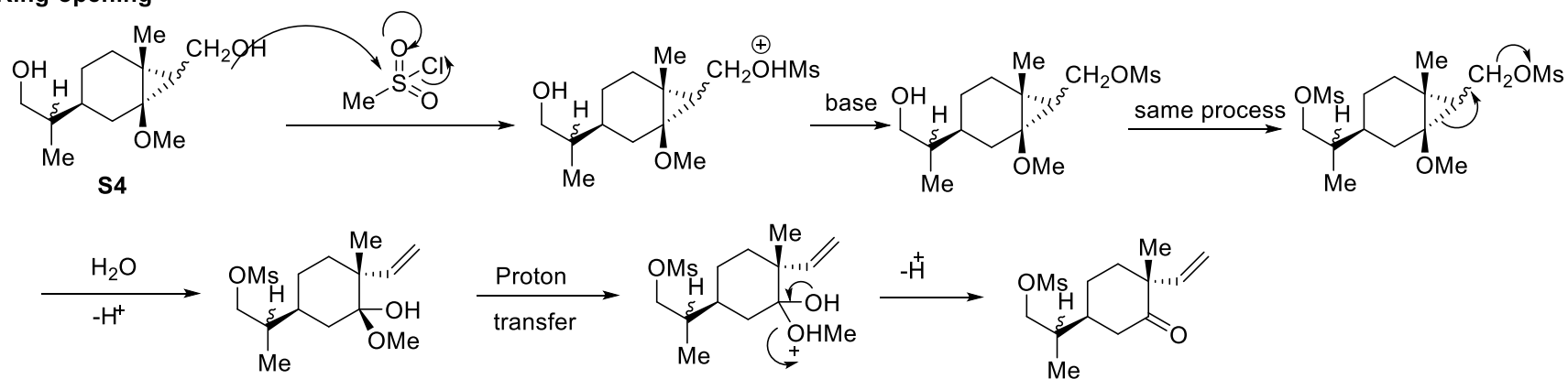


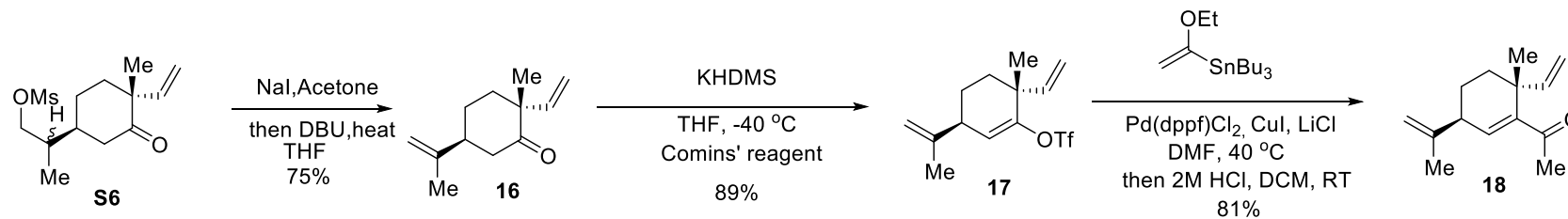


Reduction

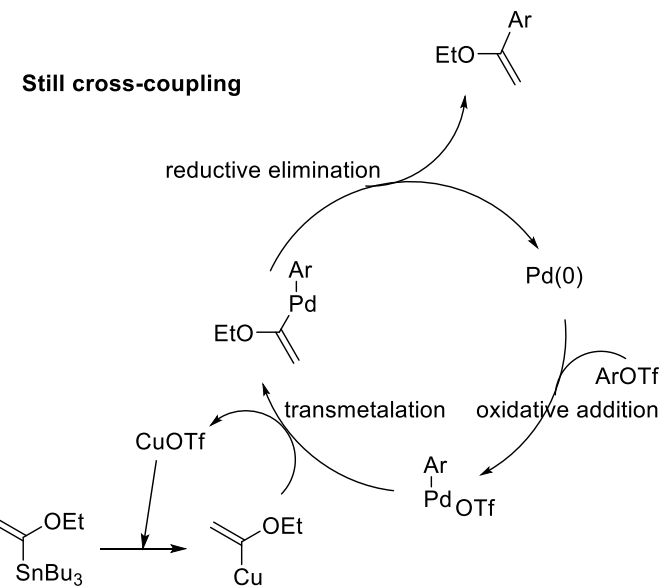
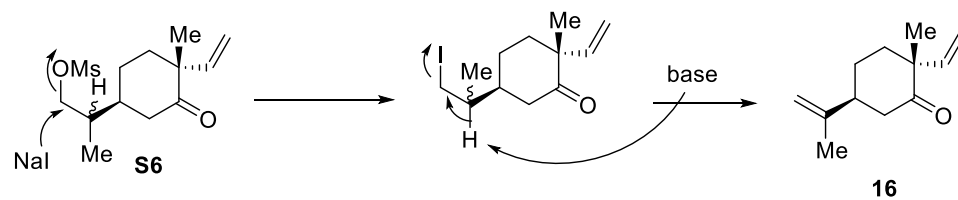


Ring-opening

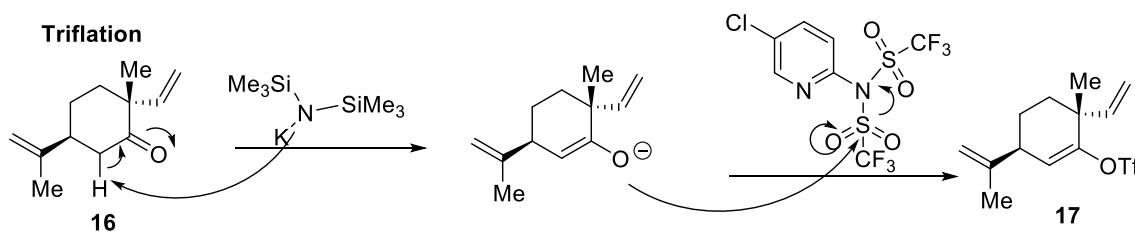




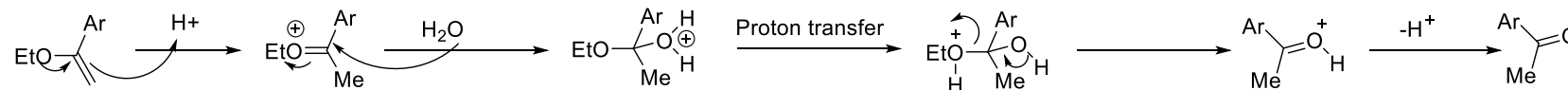
Elimination

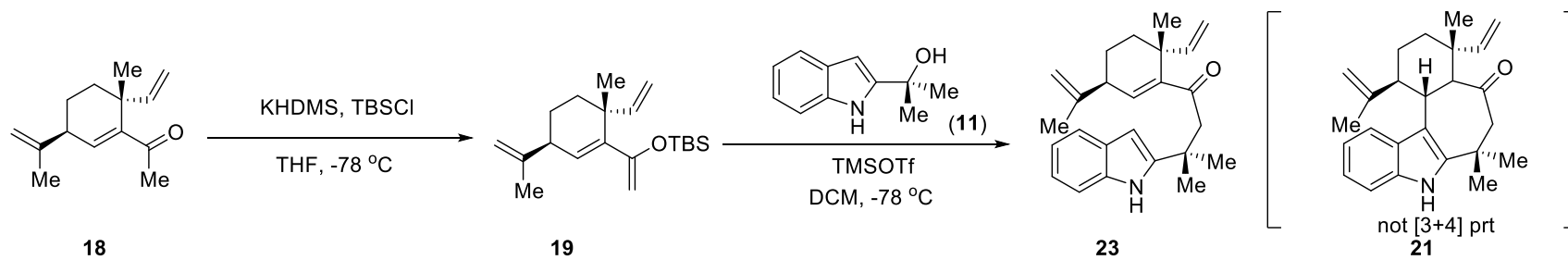


Triflation

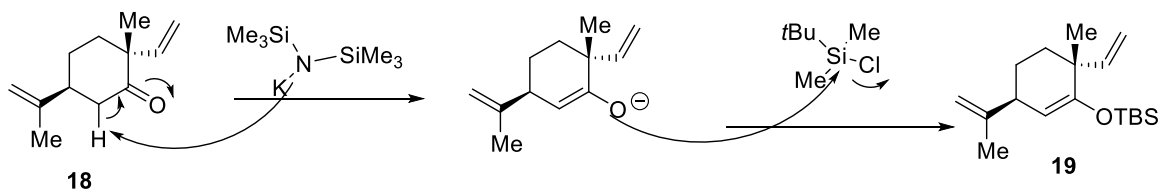


Acidic hydrolysis

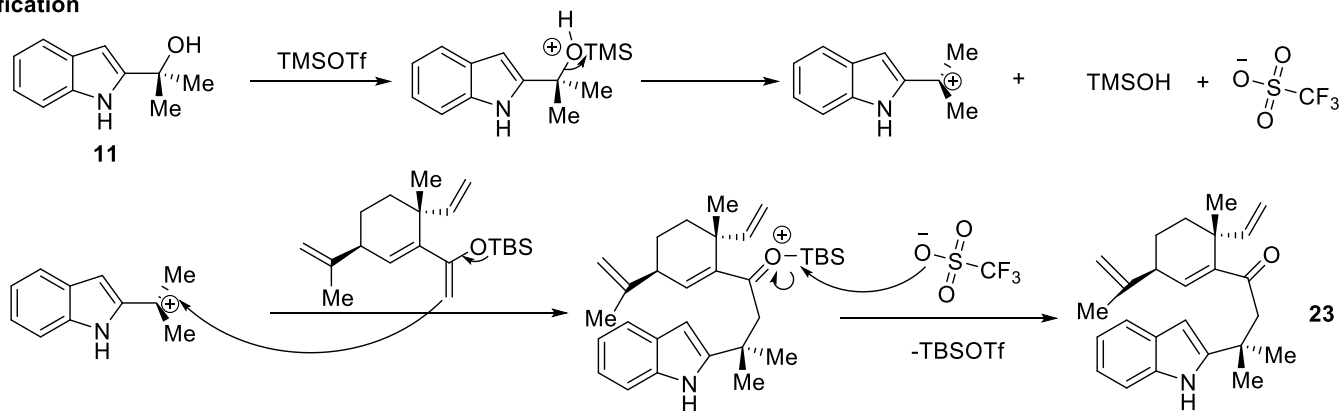


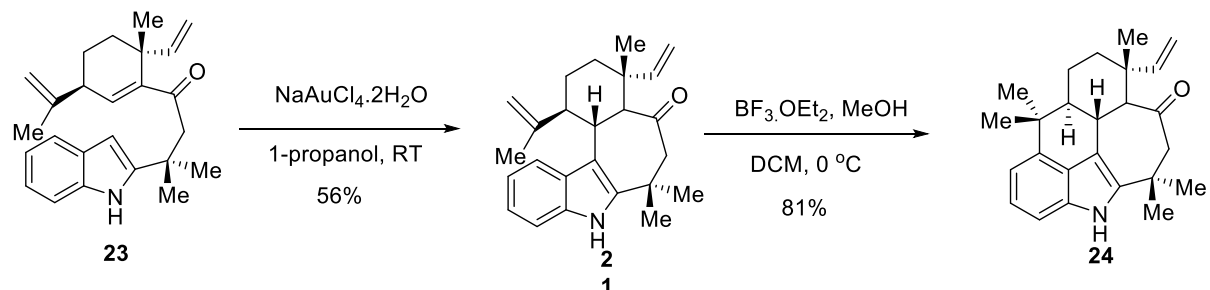


Triflation

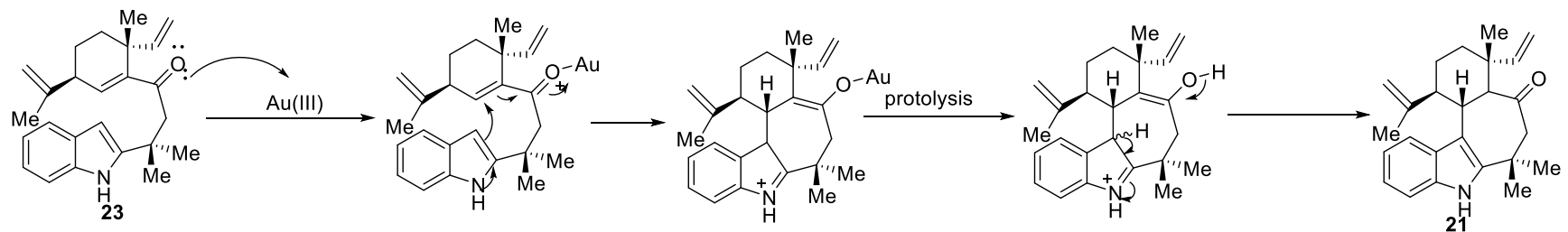


Silyl enol etherification

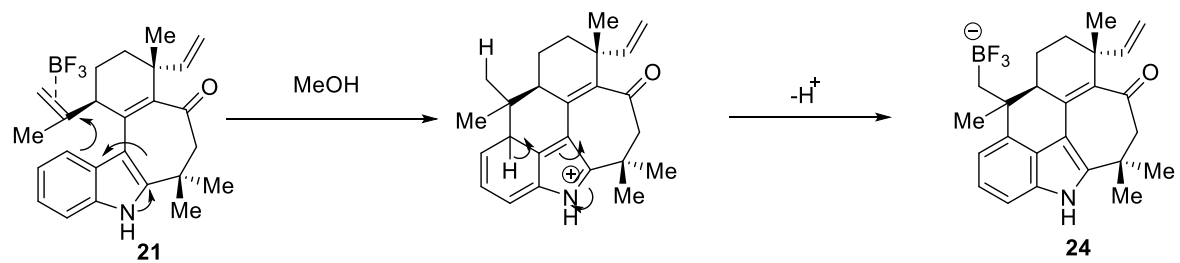


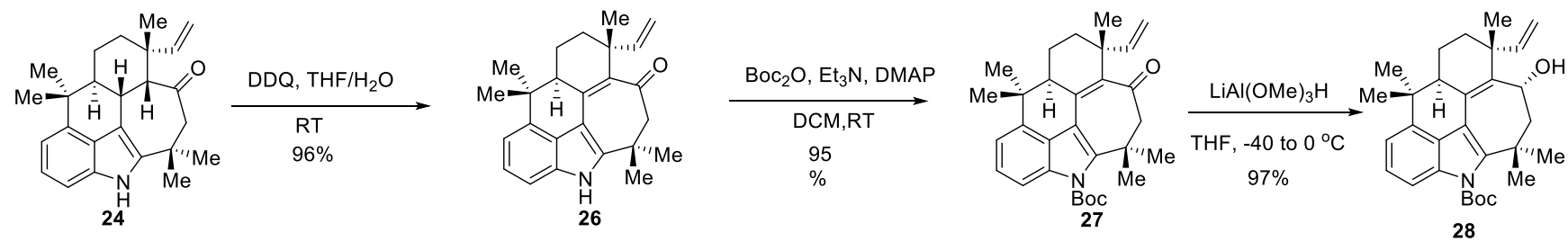


Micheal addition

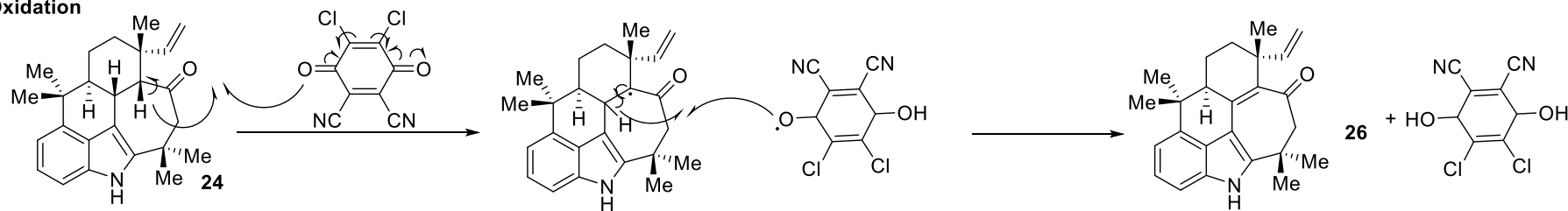


Annulation

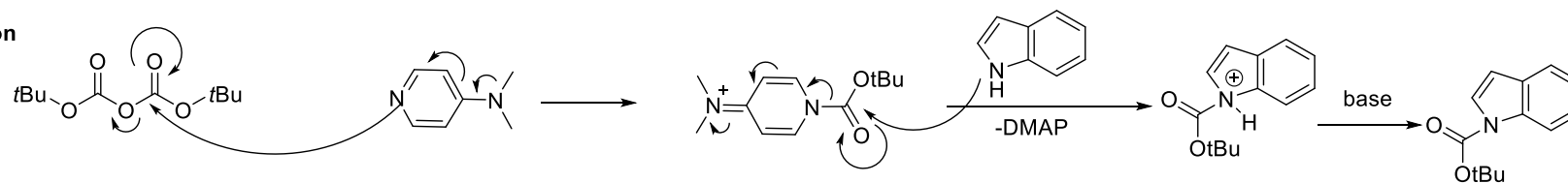




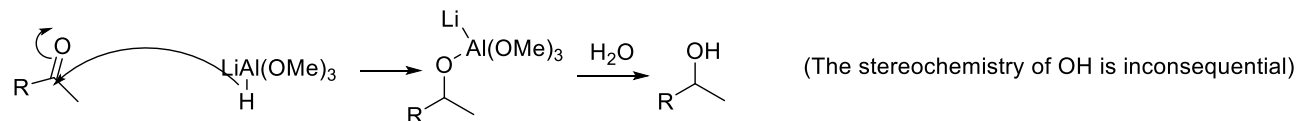
Oxidation

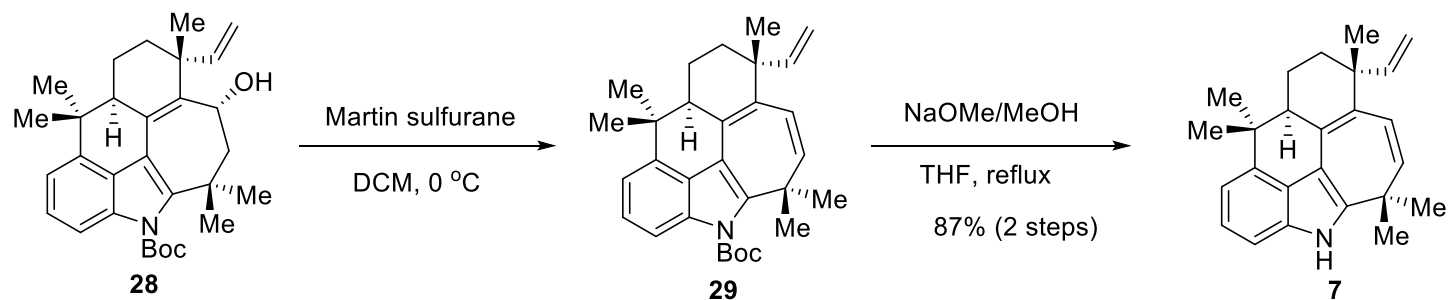


N-H Protection

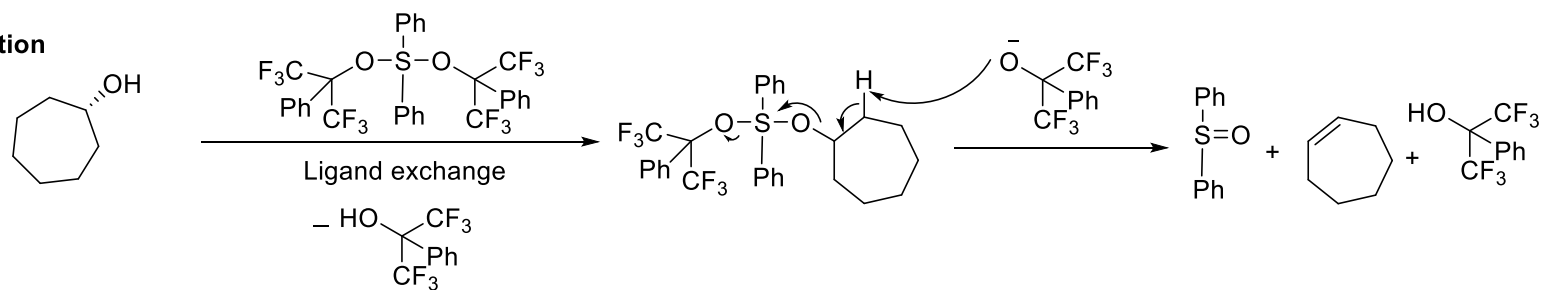


Reduction

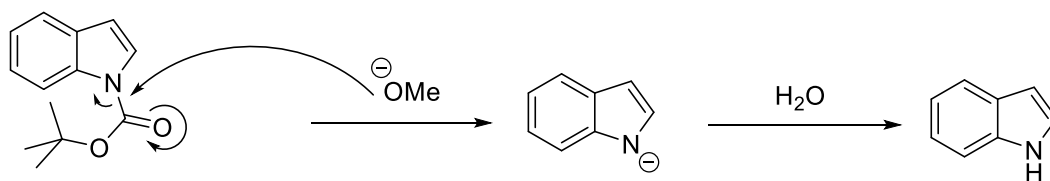


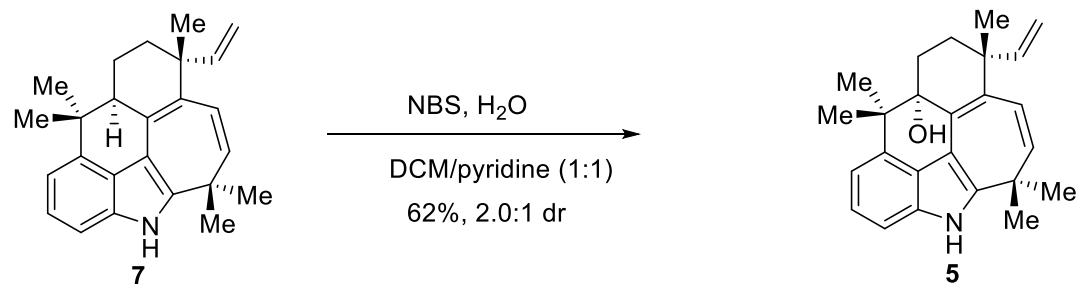


Dehydration

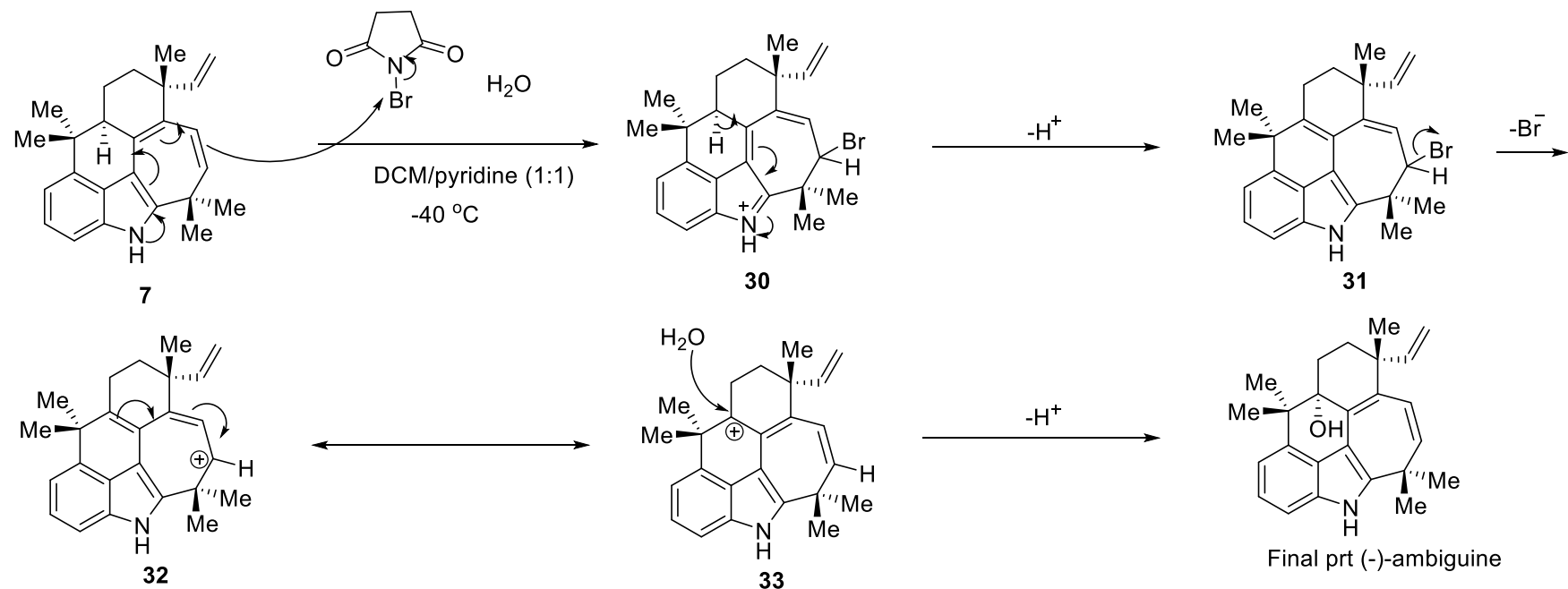


Deprotection





Oxidation



Comparison

