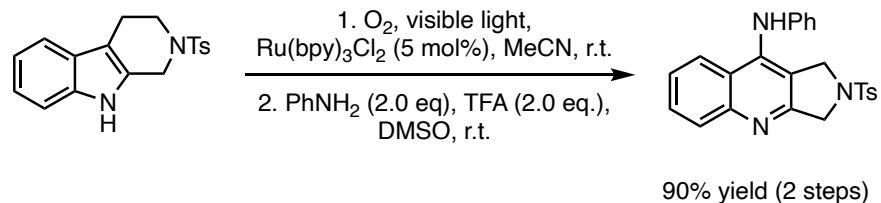
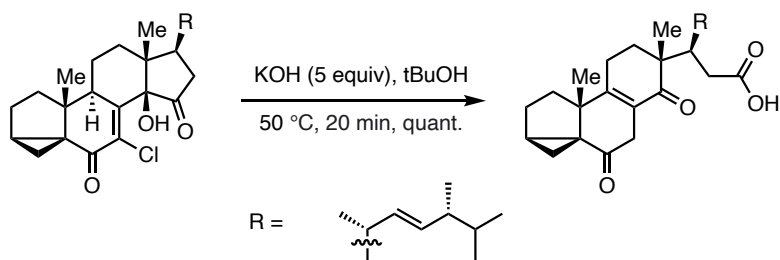


Problem Set Jan. 27, 2023 (Shutian Jiang)

1. **Scaffold Hopping Again:** Provide a mechanism for the below transformation involving functionalization and rearrangement of tetrahydro- $\beta$ -carboline substrates. (ref. Chen, H. *Angew. Chem. Int. Ed.* **2017**, *56*, 14968-14972)



2. **Lightning-fast Domino Processes:** Provide a mechanism for the efficient transformation below in the synthesis of strophasterol A from ergosterol. (ref. Heretsch, P. *Angew. Chem. Int. Ed.* **2016**, *55*, 11656-11659)



3. **From the Grave of Mechanisms Club:** Provide a plausible mechanism for the below transformation to zip together the skeleton of aziridinomitosenone products. (ref. Tucci, F. C. *J. Am. Chem. Soc.* **2000**, *122*, 5401-5402)

