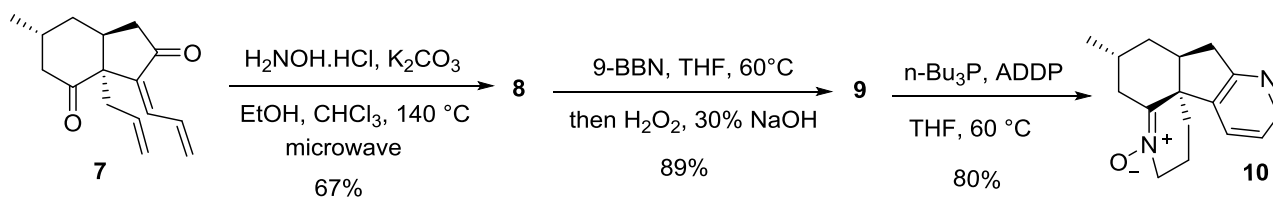
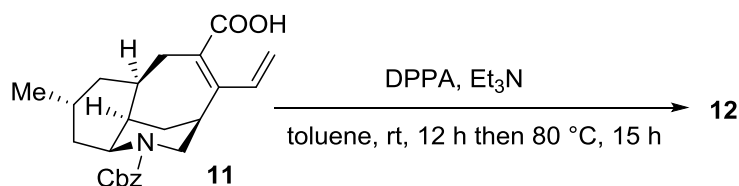


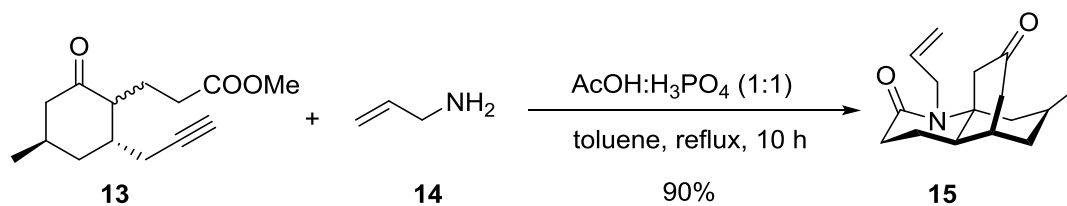
1. Give the missing structures **1** and **2**.
2. Propose a mechanism for formation of **5** from **4**.



3. Give the missing structures **8** (formed in four cascade steps from **7**) and **9**.
4. Propose a mechanism for formation of **10**.



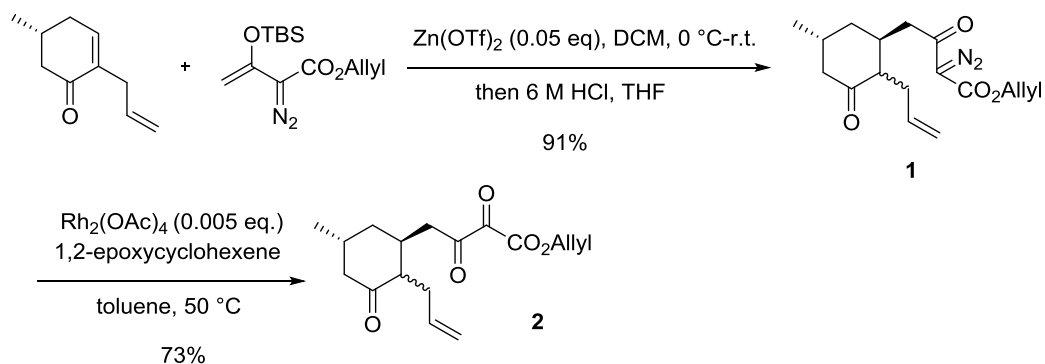
5. Give missing structure **12** and the mechanism for this reaction.



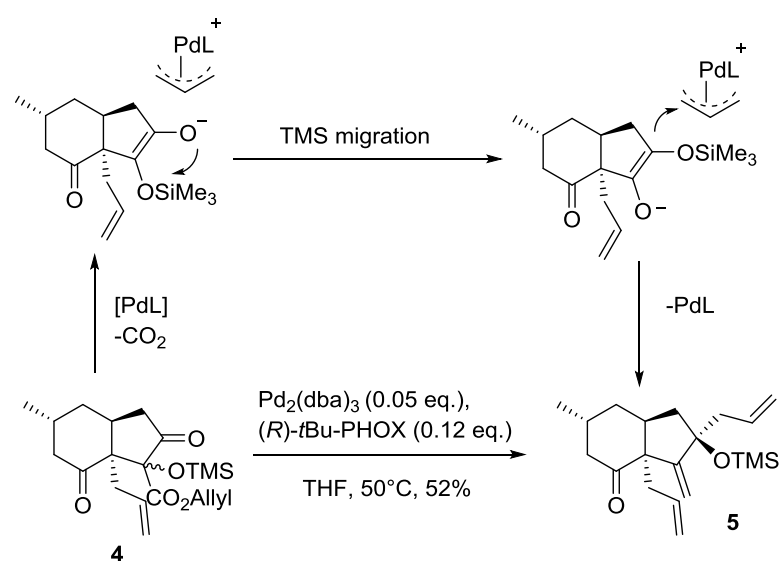
6. Propose a mechanism for this reaction.

Meng, L. *J. Org. Chem.*, **2016**, 81 (17), pp 7784–7789

1. Michael addition of silylenoether to unsaturated ketone, Ganem's deoxygenation method to get **2**

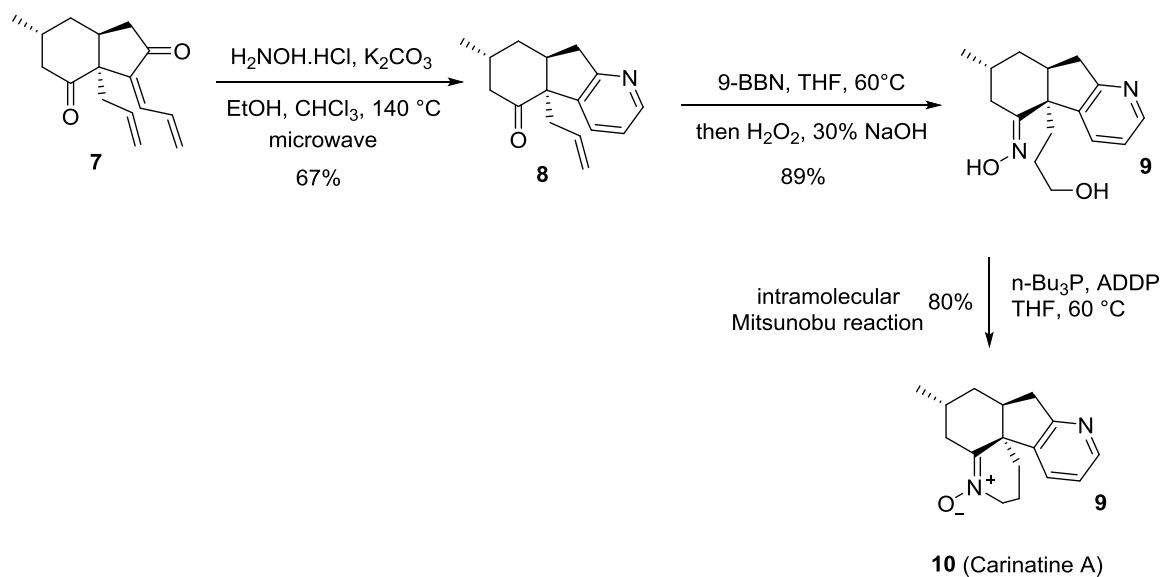


2. decarboxylative allylation of silyl ether, Tsuji-Trost allylation under Stoltz conditions

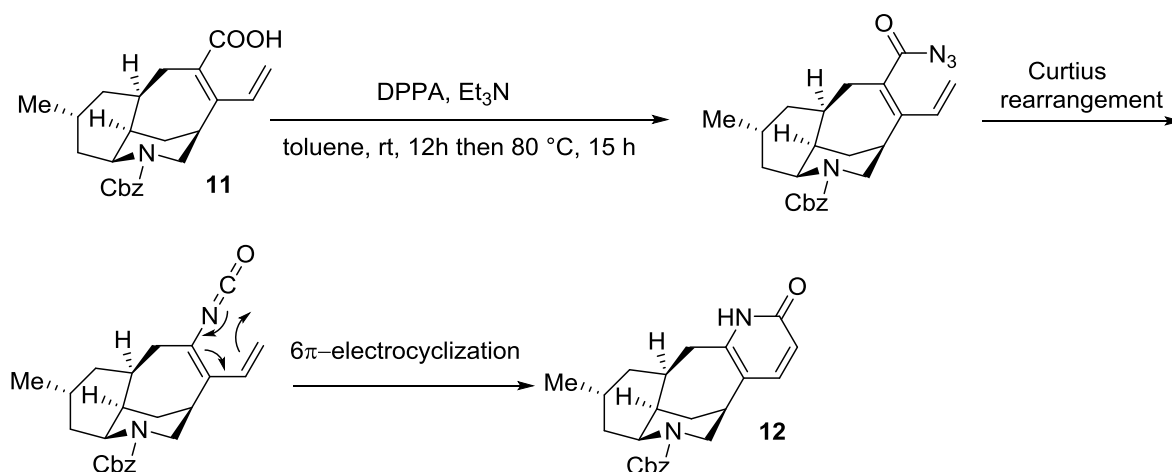


3.,4.

- oximation, isomerization, 6π-electrocyclization, dehydrative aromatization



5. Cheng, X.; Waters, S. P. *Organic Lett.* **2013**, *15*, 4226-4229.



6. Xu, S.; Zhang, D.; Ma, D.; Xu, D.; Xie, X.; She, X. *Organic Lett.* **2016**, article ASAP

- **13** reacts with allylamine to form amide, cyclizing to give dicyclic enamide, which is protonated to give N-acyliminium ion, followed by alkyne aza-Prins cyclization (6-endo-dig)

