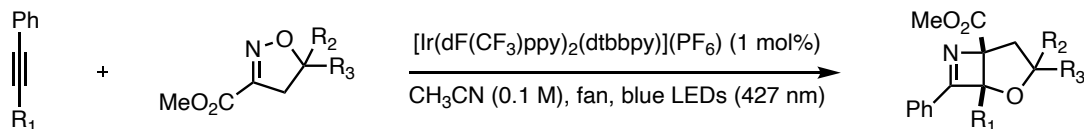
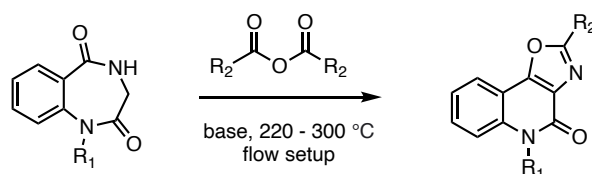


Problem Set Jun. 3, 2022 (Shutian Jiang)

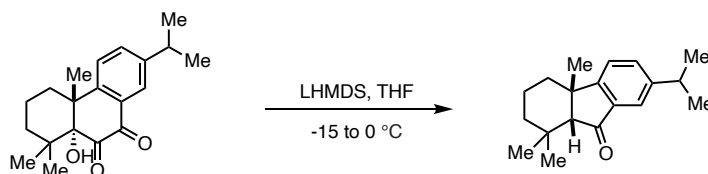
1. Provide a mechanism for the following visible light-mediated reaction to make 1-azetines (ref. Schindler, C. S. *J. Am. Chem. Soc.* **2021**, *143*, 16235-16242)



2. Provide a mechanism for the below “scaffold hopping” transformation from benzodiazepinediones to oxazoloquinolinones (ref. De Borggraeve, W. M. *Org. Lett.* **2013**, *15*, 1052-1055)



3. Provide a plausible mechanism for the below decarboxylative transformation first proposed in a biosynthetic pathway (ref. Gademann, K. *Chem. Eur. J.* **2010**, *16*, 7692-7695)



4. (For undergraduates) Below is a unique transformation that is very close to Prof. Sorensen’s heart. Draw the structure of the intermediate that is famously known as “Danishefsky’s diene” and give a brief explanation of the overall mechanism. (Hint: the key step is a reaction covered in undergraduate ochem course; ref. Danishefsky, S. *J. Am. Chem. Soc.* **1974**, *96*, 7807-7808)

