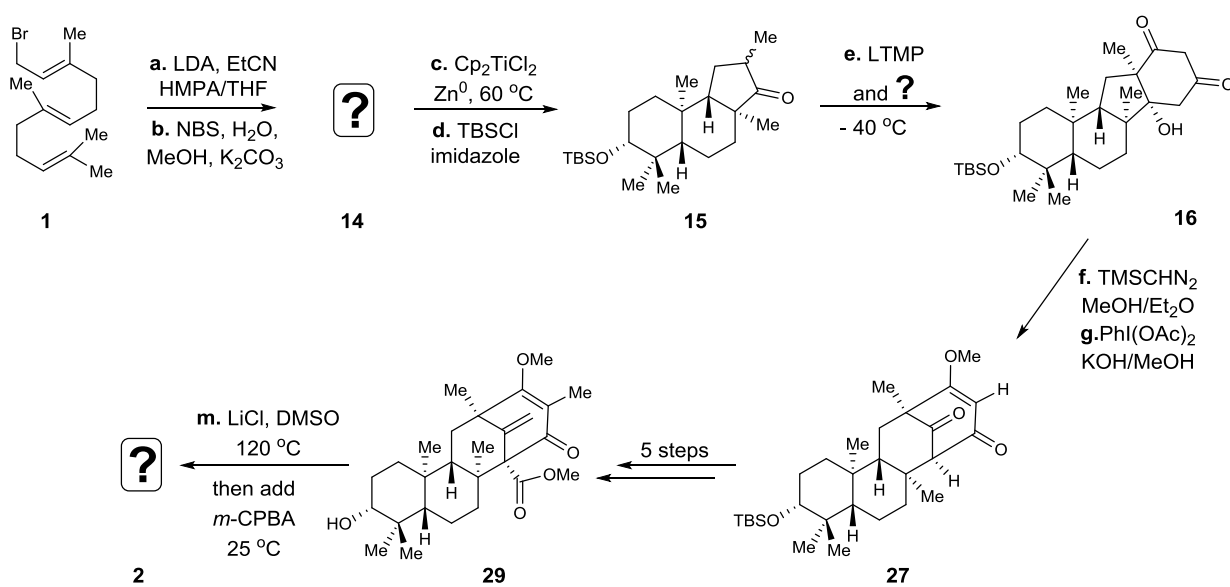


Exercise Session

Problem:



Questions:

- What is the compound **14**?
- Write the mechanism for the step **c**.
- What is the missing reagent, which will provide the formation of 1,3-diketone **16**? Use retrosynthetic analysis to predict this reagent. How can you synthesize it?
- Give the mechanisms for both steps (**f** and **g**) in transformation **16** to **27**.
- Suggest 5 steps for transformation **27** to **29**.
- What is the final product **2**? What is the name of first reaction?

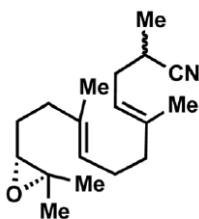
Annulative Methods Enable a Total Synthesis of the Complex Meroterpene Berkeleyone A

Chi P. Ting, Gong Xu, Xianhuang Zeng, and Thomas J. Maimone

DOI: [10.1021/jacs.6b10397](https://doi.org/10.1021/jacs.6b10397)

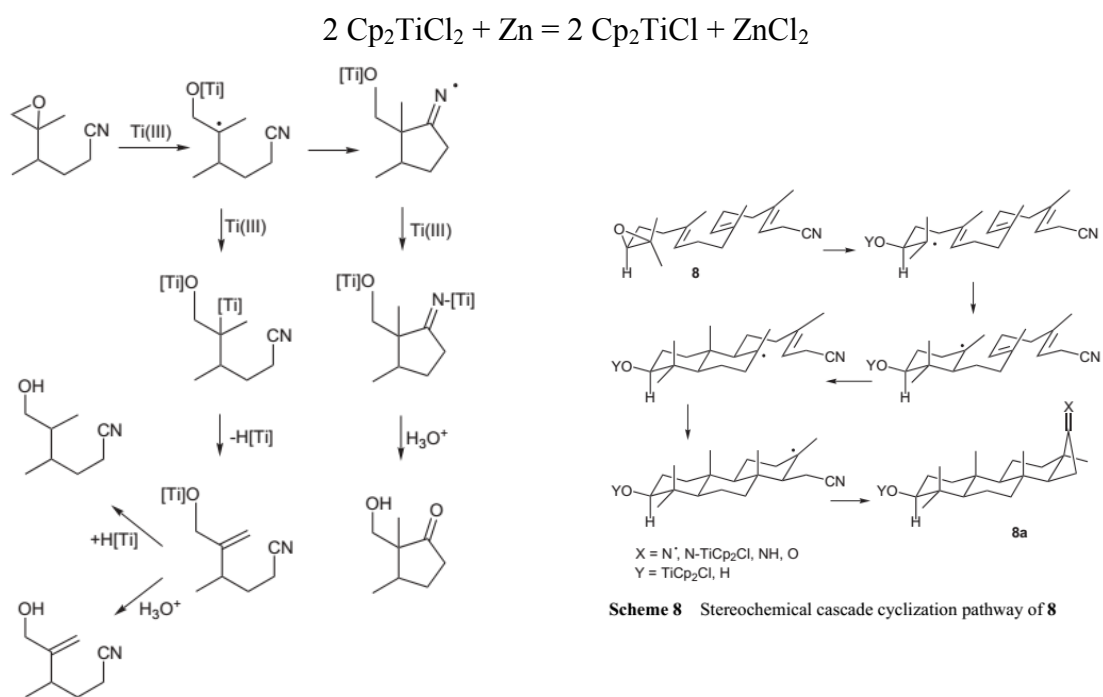
J. Am. Chem. Soc. **2016**, *138*, 14868–14871

1. Compound 14.



14

2. Mechanism of step c.



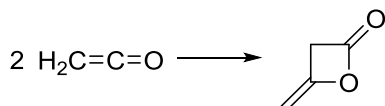
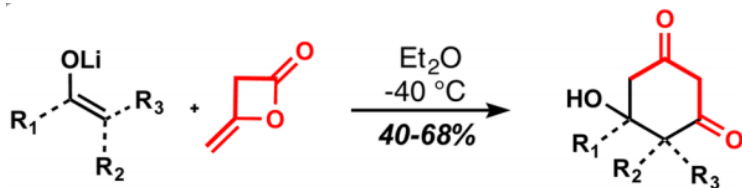
Scheme 2 Reaction mechanism of Cp_2TiCl with epoxynitriles

Scheme 8 Stereochemical cascade cyclization pathway of 8

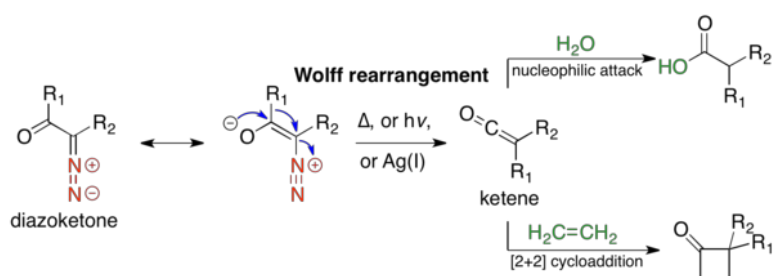
A. Fernández-Mateos, et al. *Synlett* 2004, *6*, 1011 – 1014.

A. Fernández-Mateos, et al. *Synlett* 2007, *17*, 2718 – 2722.

3. Missing reagent and ways of synthesis of diketene and ketene.

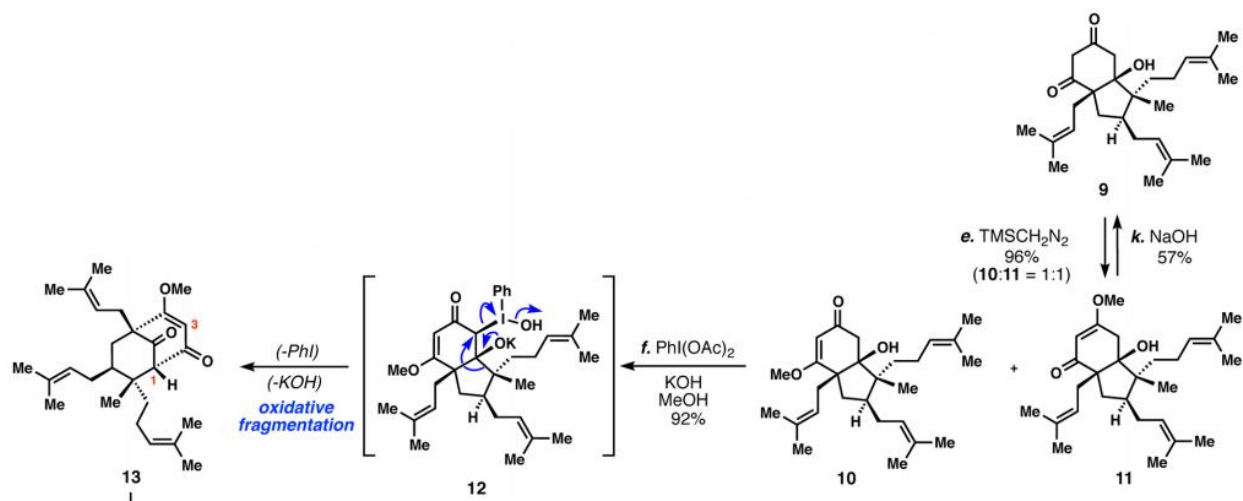


Wolff Rearrangement



Dehydrohalogenation of acyl chlorides or pyrolysis of acetone

4. Mechanisms for both steps (f and g) in transformation 16 to 27.



5. 5 steps for transformation **27** to **29**. Final product **2**. Krapcho-type demethylation.

