



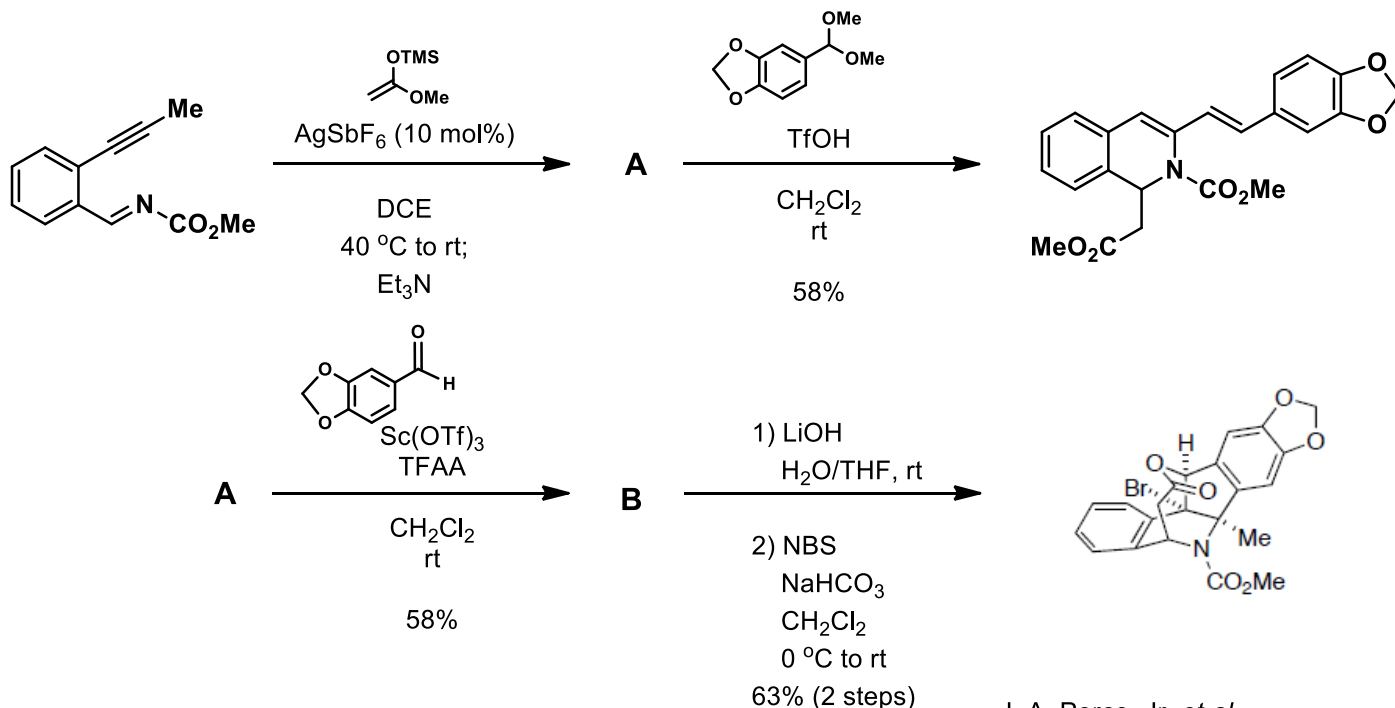
CHEM 8410_6410_4410 – Organic Synthesis

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Problem Set 3: This problem set is now available at (www.blackboard.utdl.edu). It will be due in class 29 days (03/24/20) from today (02/25/20). Grades will be administered as follows: 10 (exceptional effort), 8 (complete), 5 (incomplete or inadequate effort), 2 (poor effort), 0 (nonexistent).

No late problem sets will be accepted. Total PTS = 30

1. **Problem:** Work by the Porco group is highlighted below. Provide the reaction mechanisms for the transformations. Note the difference in reagents employed to convert **A** into varying structures including **B**. Please show as much detail as possible.



J. A. Porco, Jr. *et al.*,
Org. Lett. **2007**, 9, 4983.

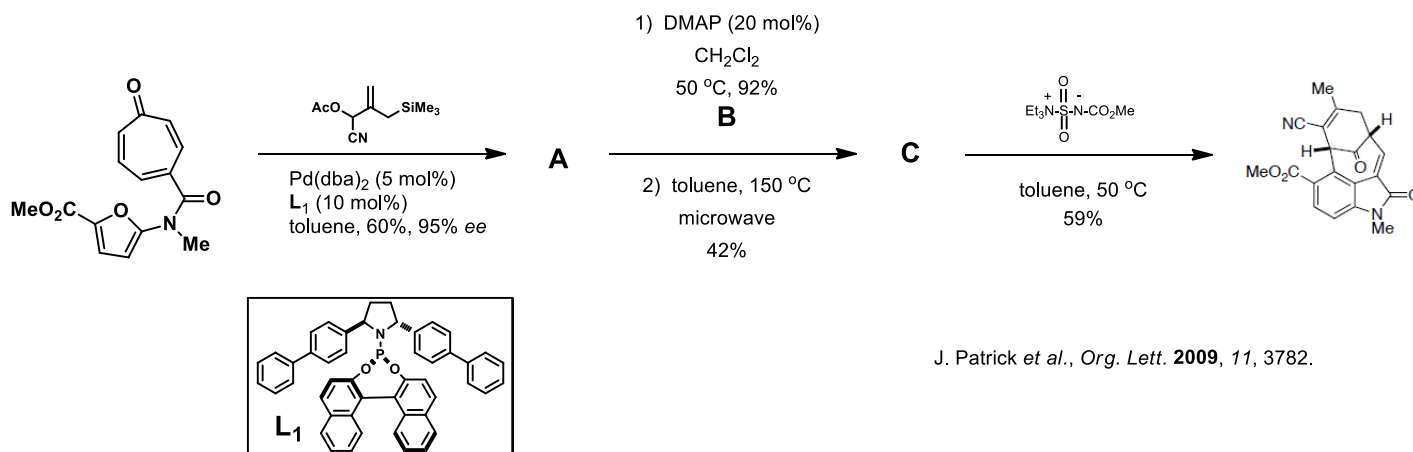
Answer:



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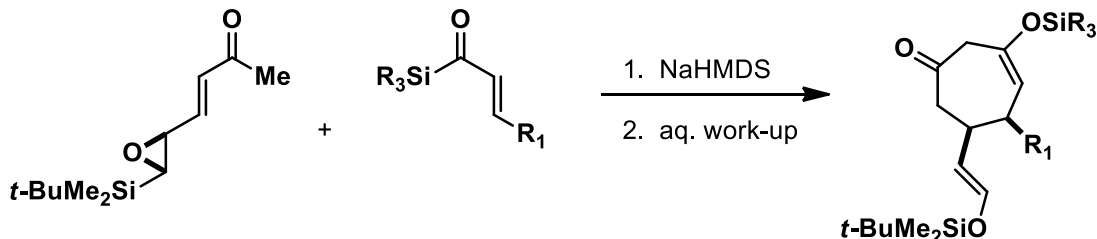
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2. **Problem:** Work by the Patrick group accumulated into a complex natural product-like scaffold. Provide all the mechanisms for the transformations leading to A, B, C and target molecule. How does the ligand (L_1) work in the mechanism?



Answer:

3. **Problem:** Takeda and coworkers recently reported the following formal [3+4] addition for the synthesis of 7-membered ketones (*JOC* **2007**, 72, 1379). Please provide a mechanism for the generation of the product.



Answer: