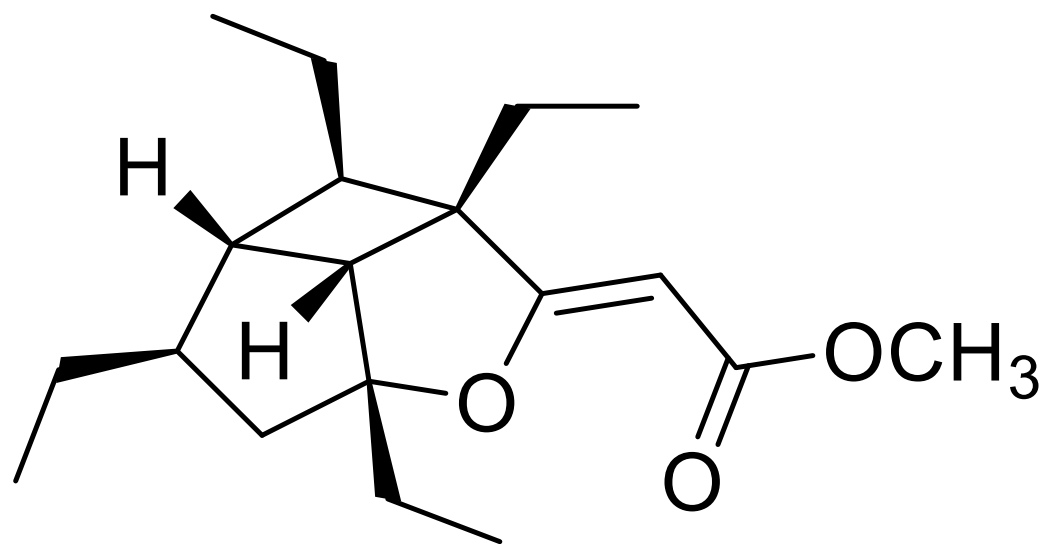


# Total Synthesis of ( $\pm$ )-Hippolachnin A

Stefan A. Ruider, Tobais Sandmeier, and Erick M. Carreira

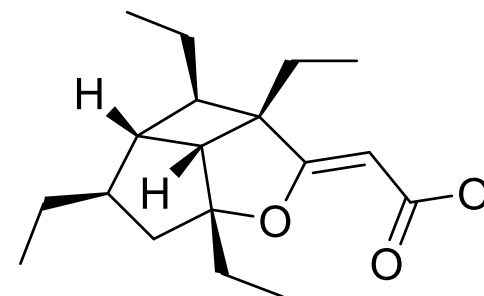


Emily Dzurka

CEM 852 | Michigan State University | February 27 2018

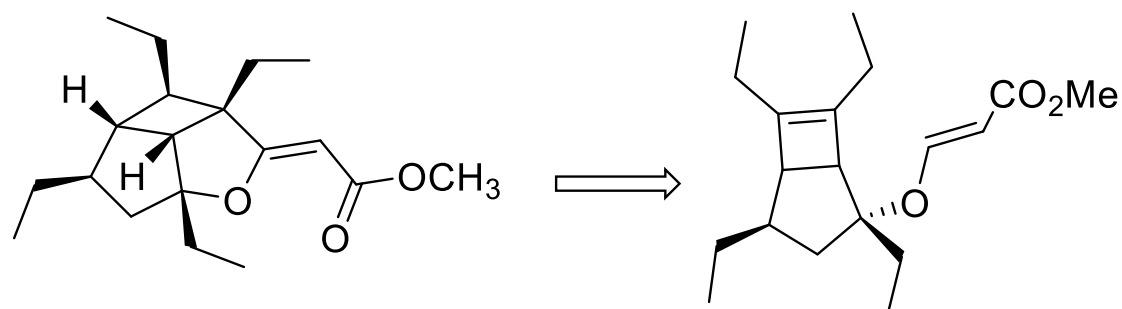
# Background

- Recently isolated marine polyketide
- Exhibits antifungal activity, and treatment for renal fibrosis, acute renal failure, and rhinitis
- Highly substituted cyclobutane ring and six stereocenters
- Its structure resembles other recently isolated polyketides



*Angew. Chem. Int. Ed.* 54. 2015, 54, 2378

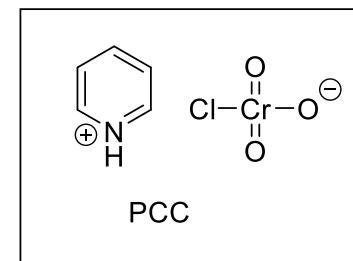
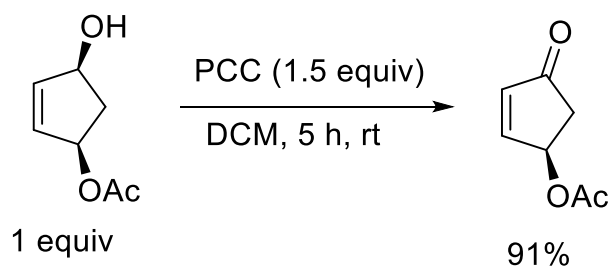
# Retrosynthesis



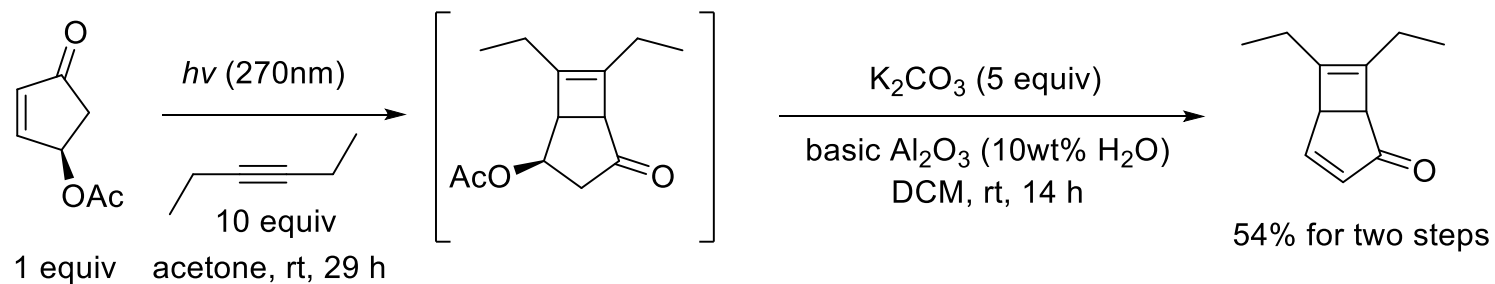
- Unactivated cyclobutene is used for the generation of a quaternary stereocenter
- Entry into a scaffold that is common to multiple different marine natural products

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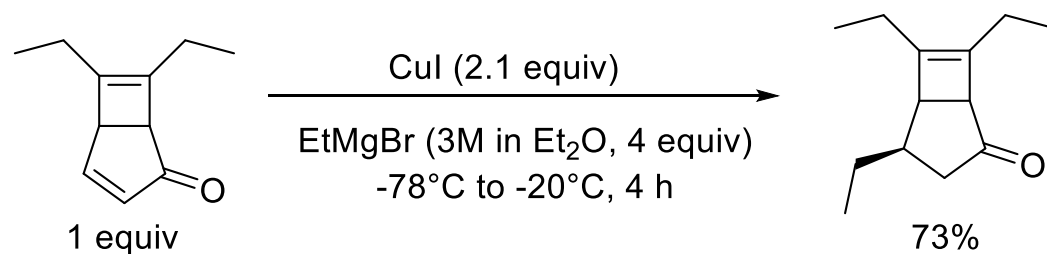
Step 1:



Step 2:

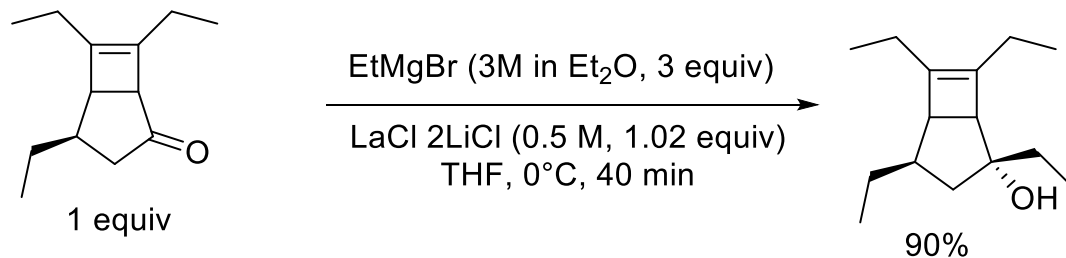


Step 3:

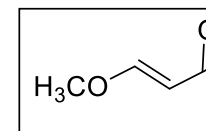
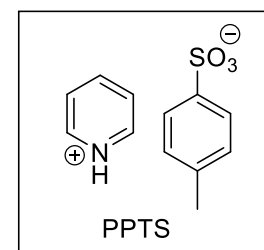
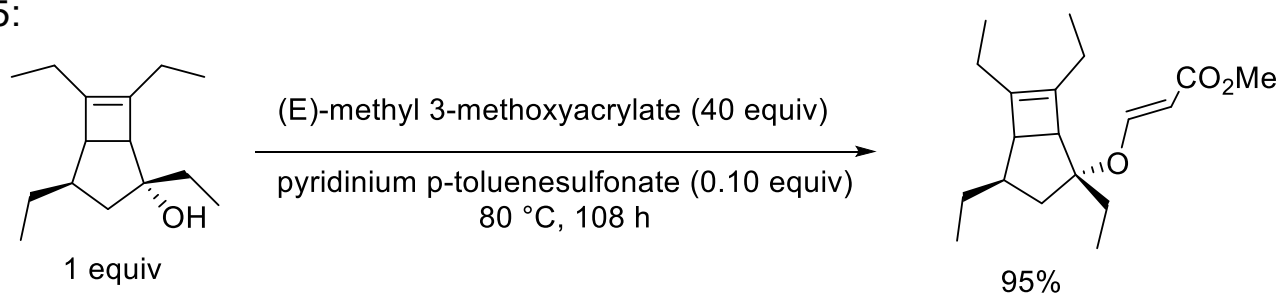


*Angew. Chem. Int. Ed.* 54. 2015, 54, 2378

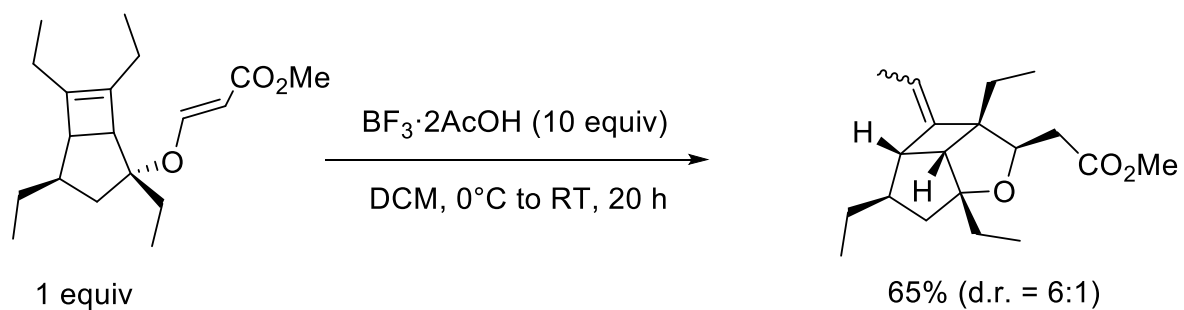
Step 4:



Step 5:

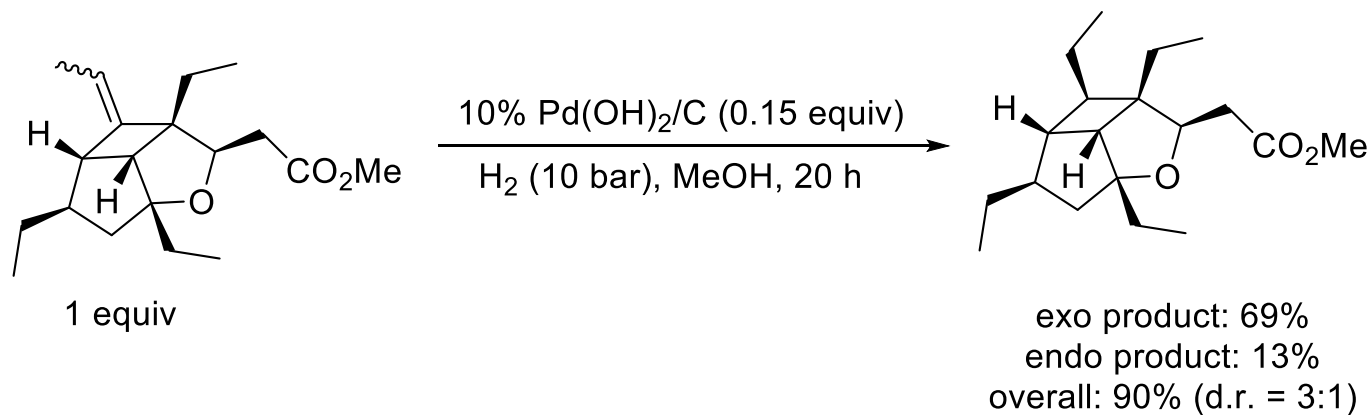


Step 6:

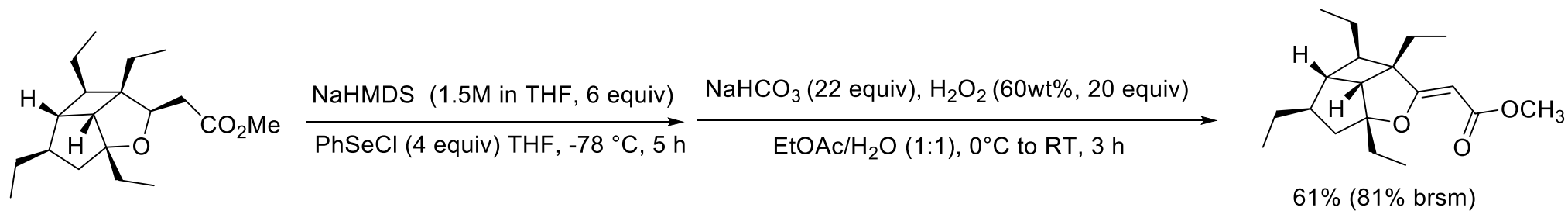


*Angew. Chem. Int. Ed.* **2015**, *54*, 6037.

Step 7:



Step 8:



*Angew. Chem. Int. Ed.* **2015**, *54*, 6037.