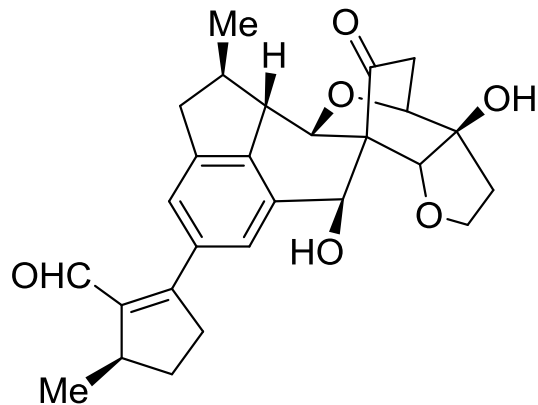


Enantioselective Total Synthesis of (–)-Incarviatone A

Benke Hong, Chao Li, Zhen Wang, Jie Chen, Houhua Li, and Xiaoguang Lei

DOI: 10.1021/jacs.5b08551

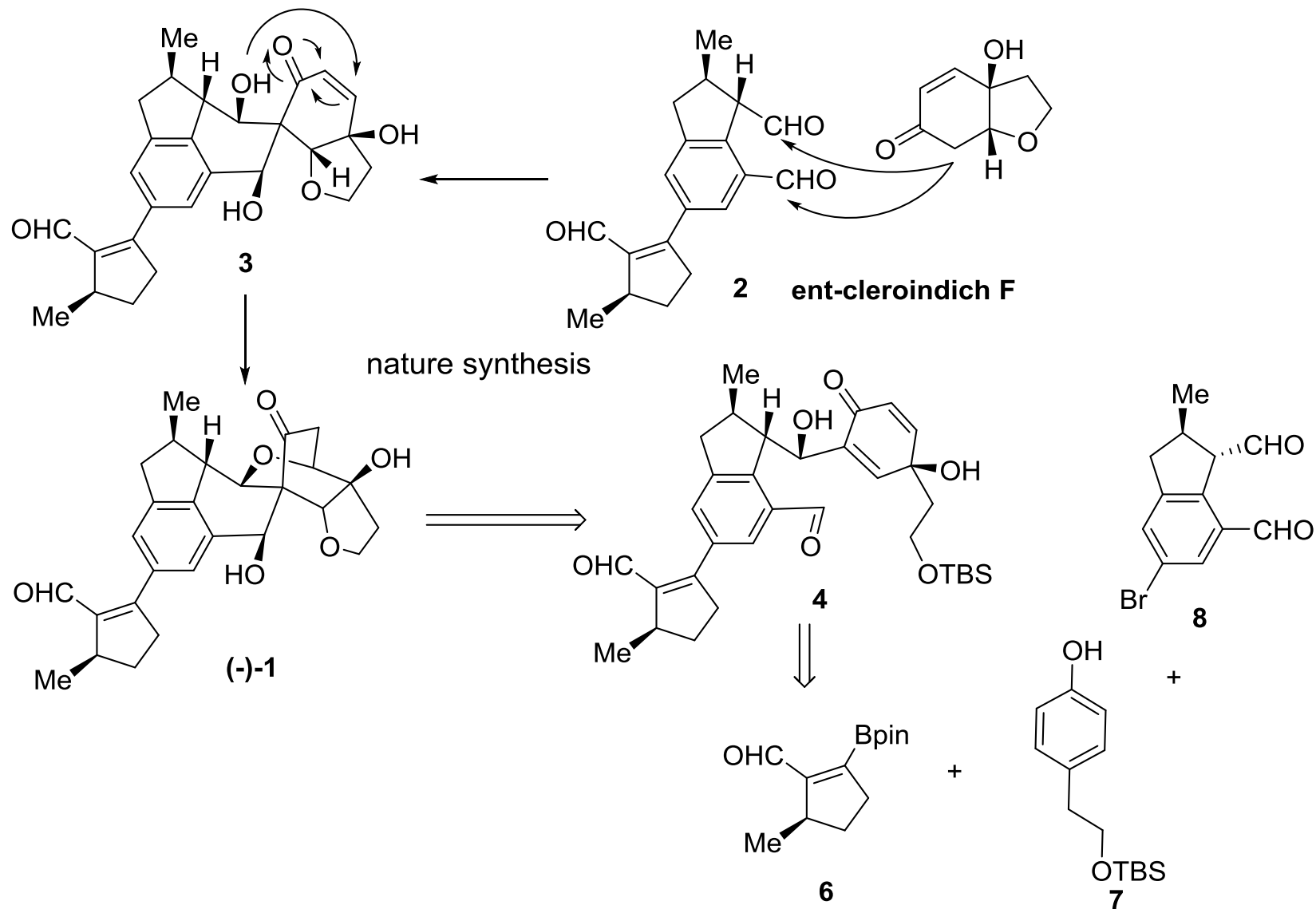


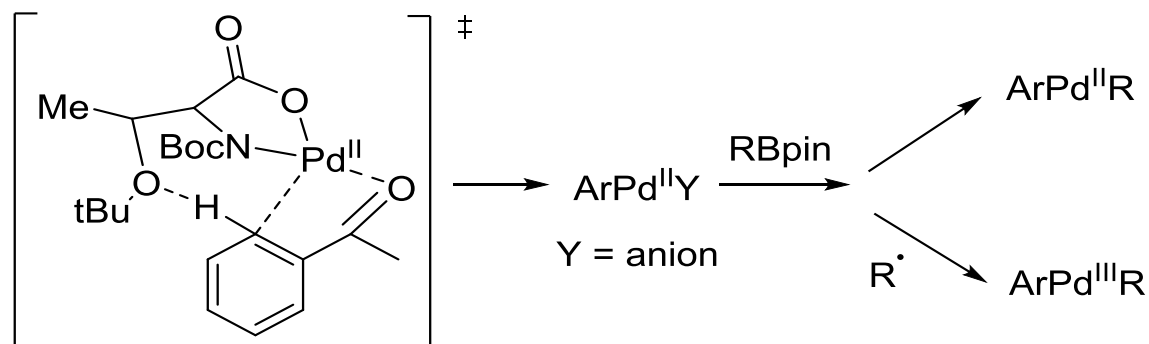
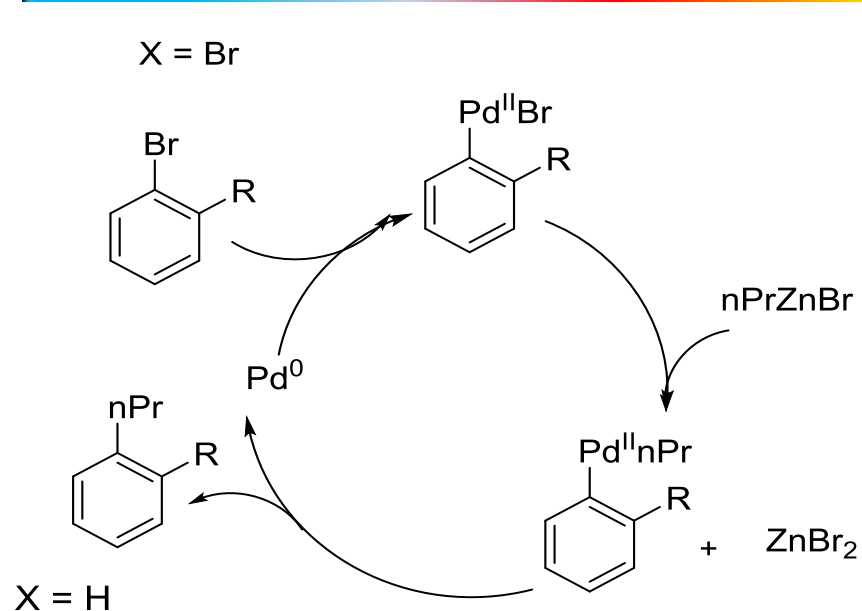
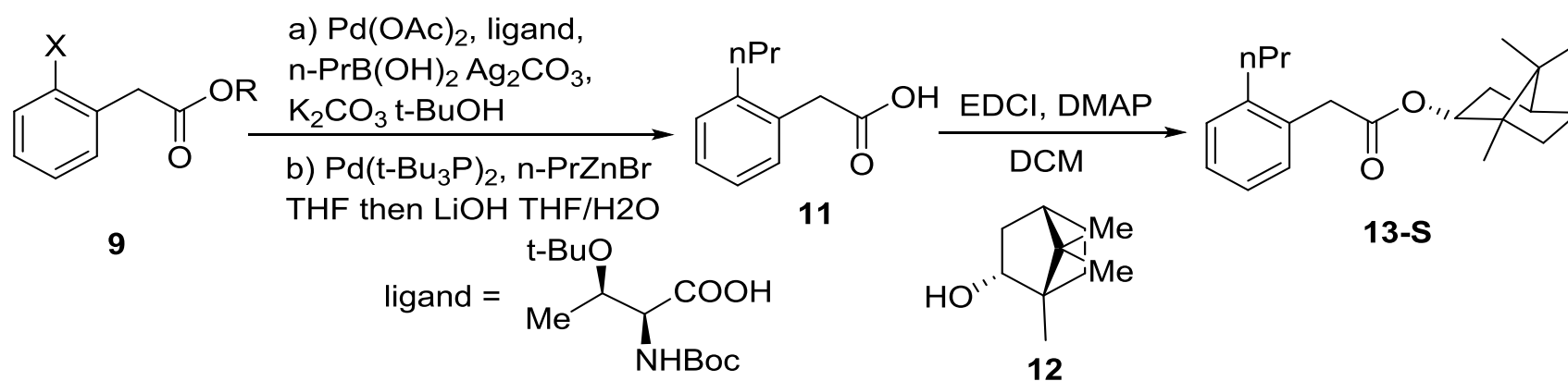
(–)-Incarviatone A

First isolated by Zhang group in 2012, and showed notable potential as a novel monoamine oxidase (MAO) inhibitor.

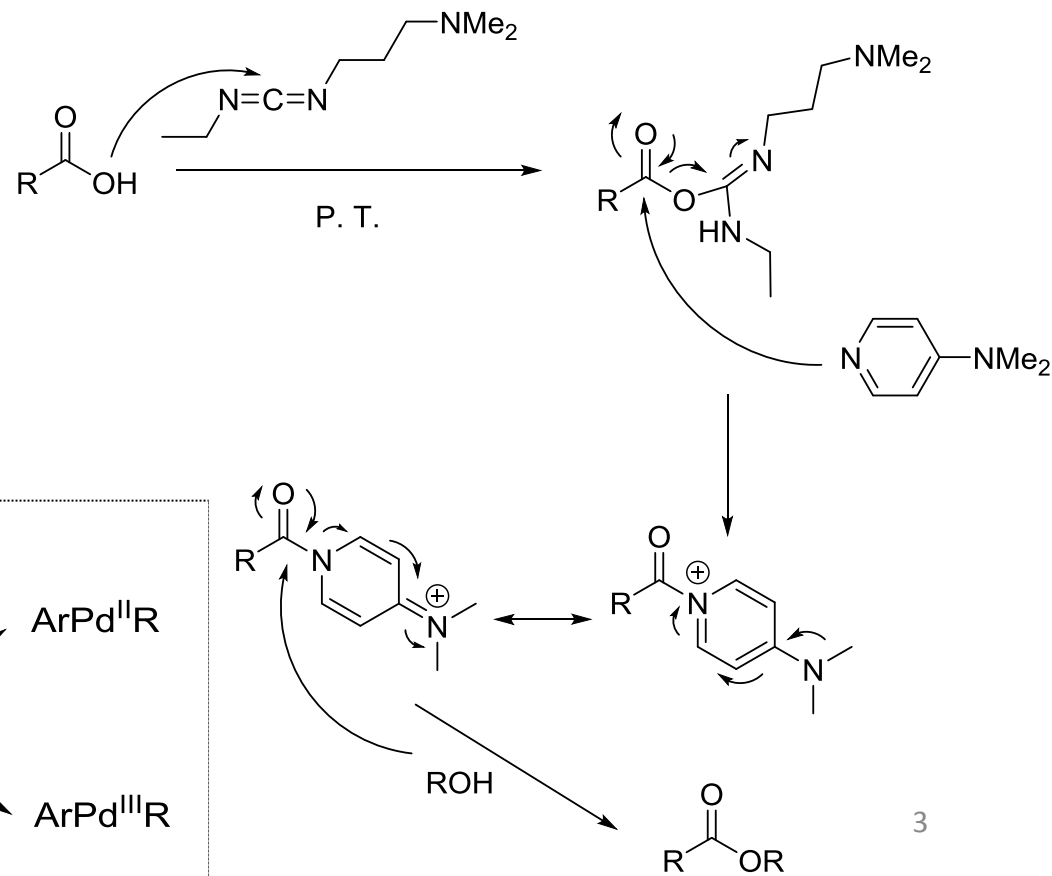
Has eight contiguous stereogenic centers and a unprecedented polycyclic framework.

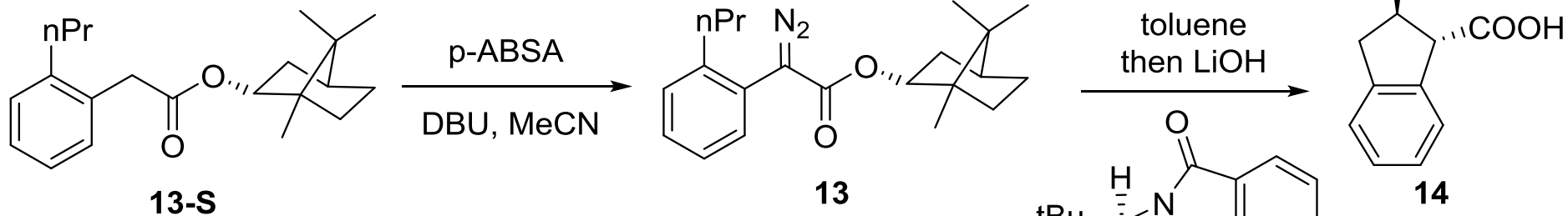
Retrosynthetic analysis



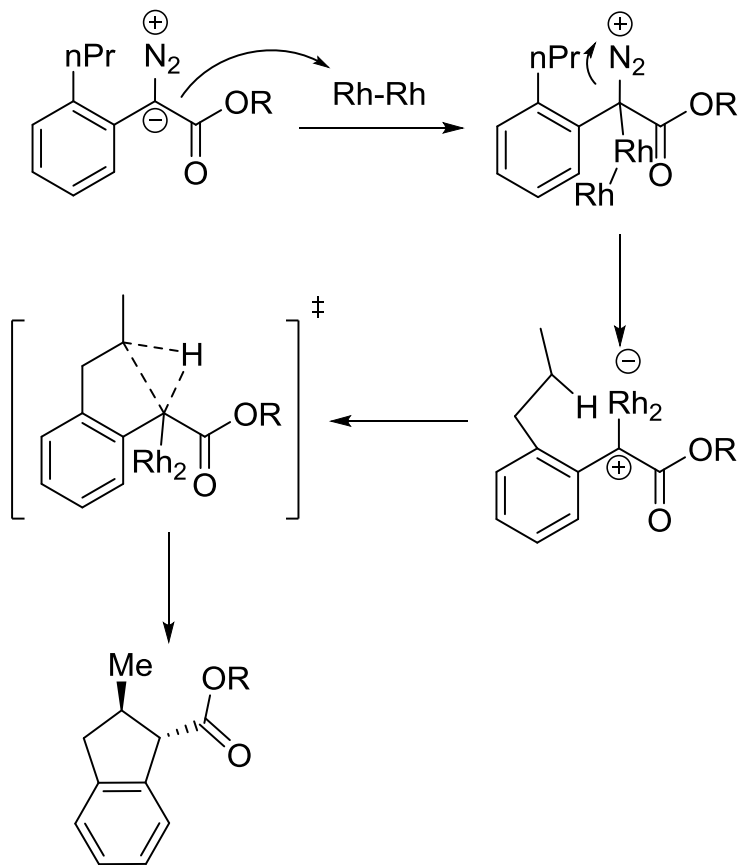
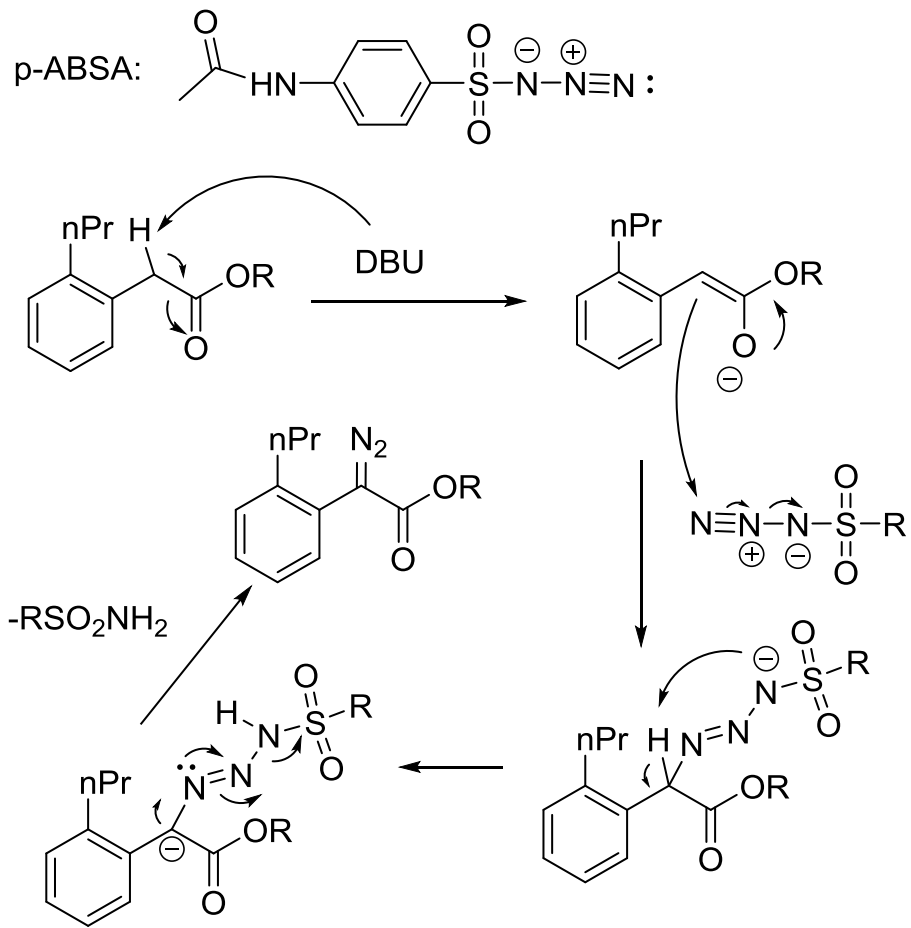


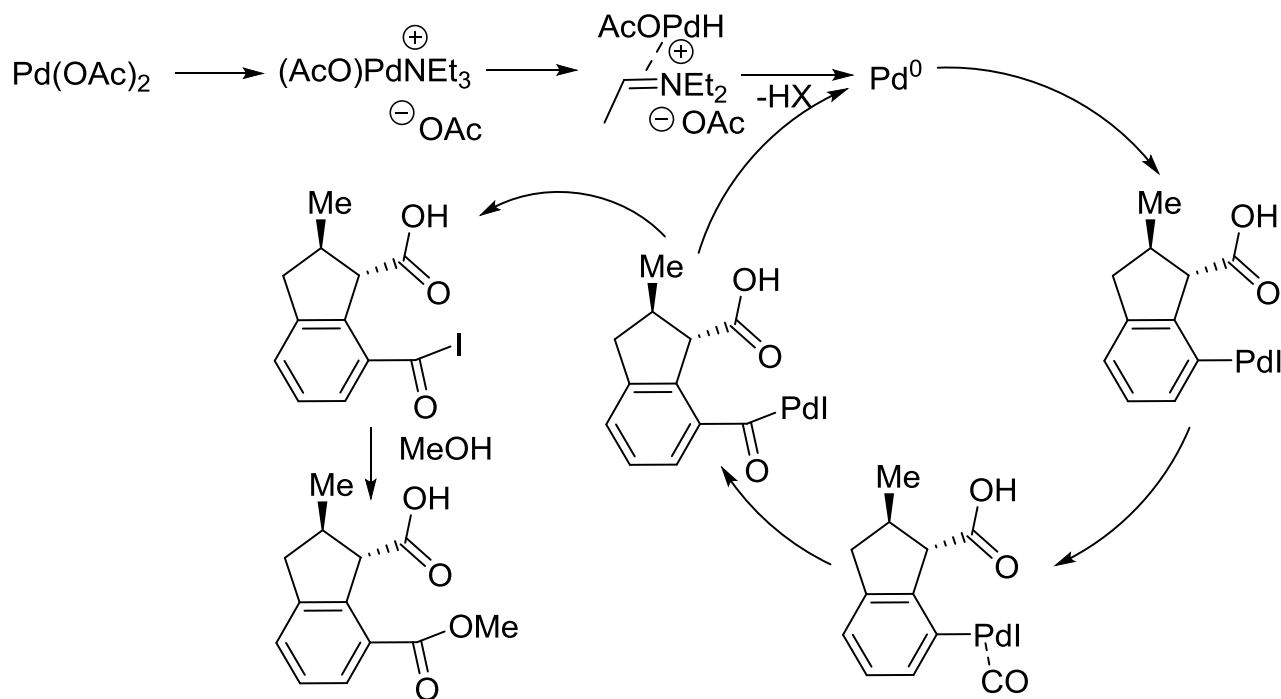
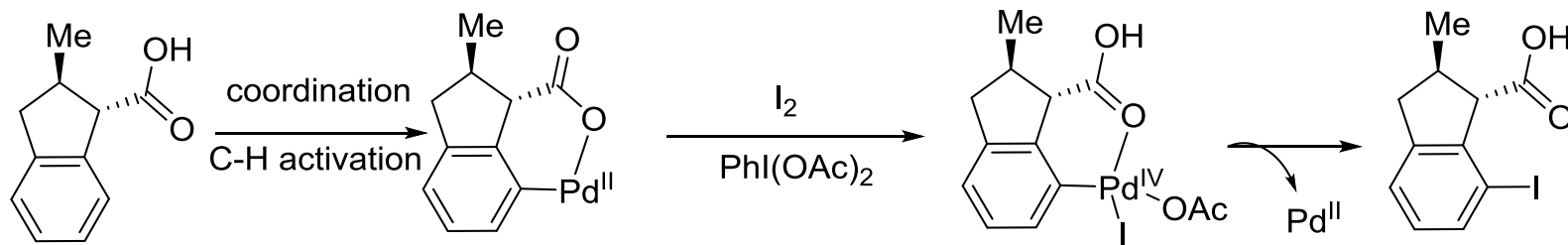
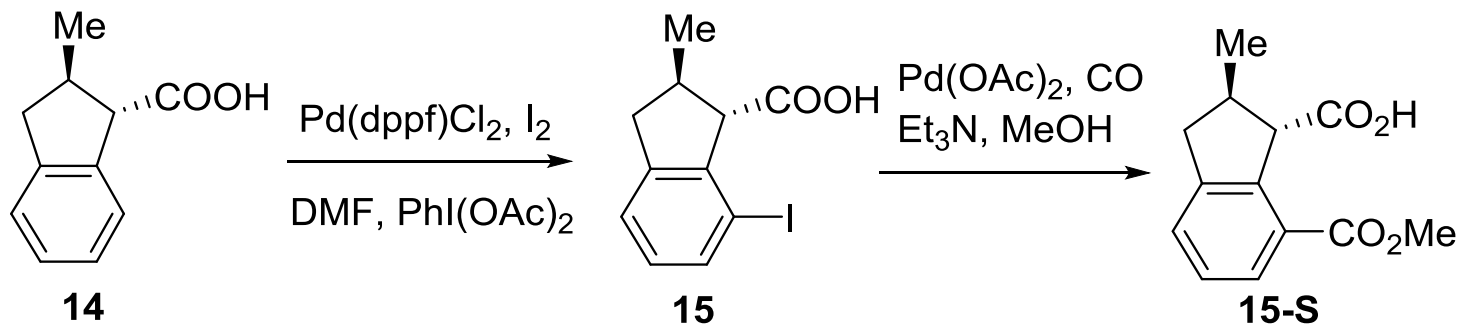
Steglich Esterification

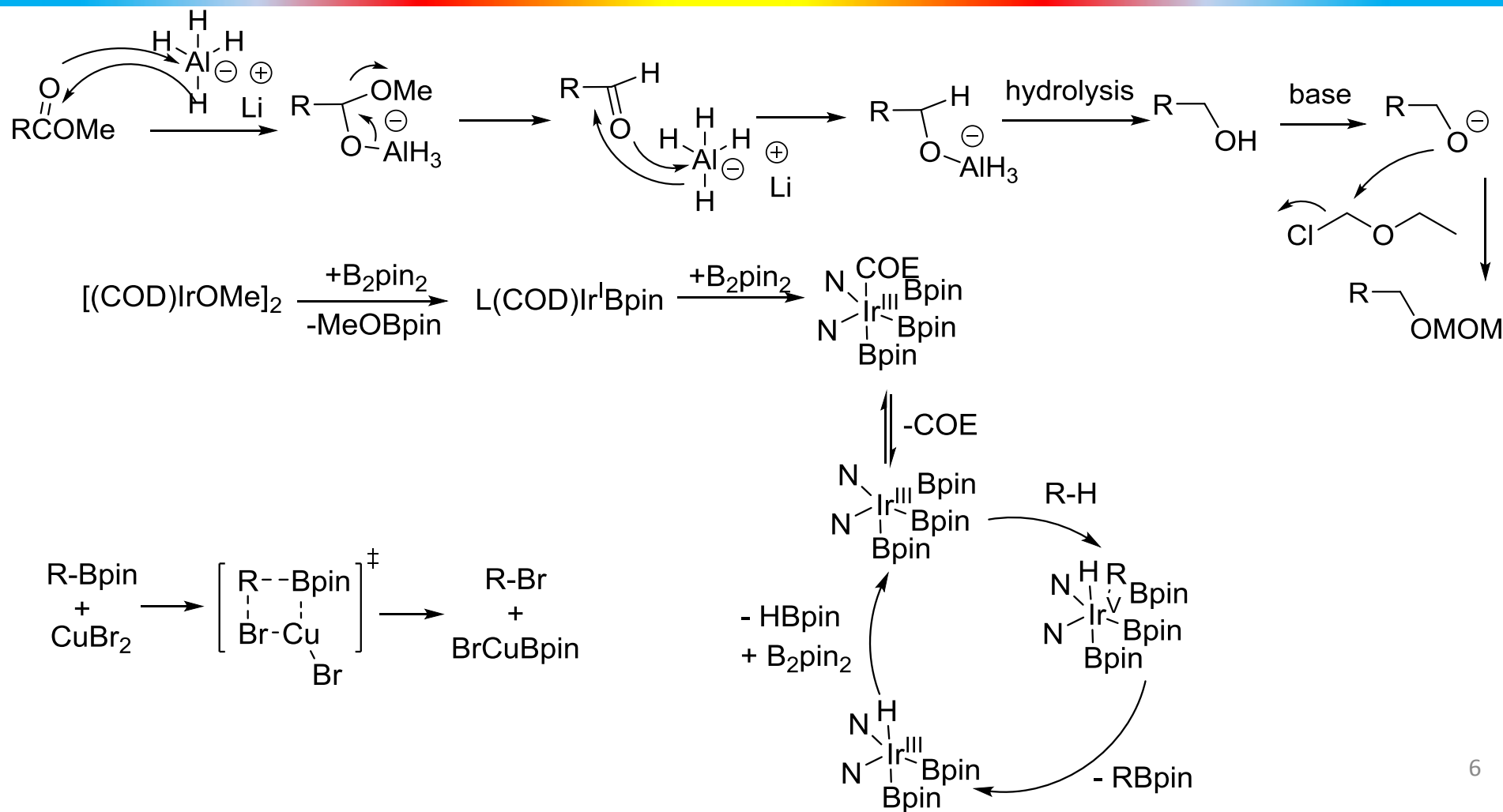
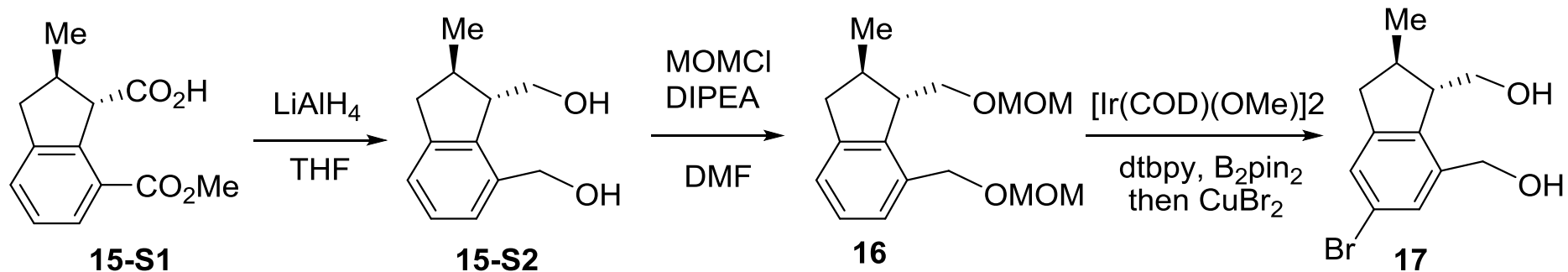


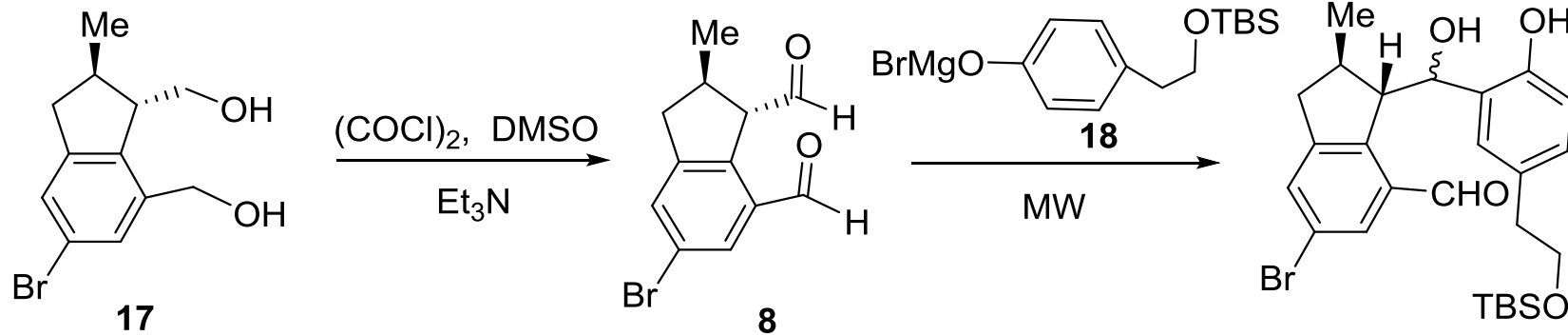


Regitz-Diazotransfer

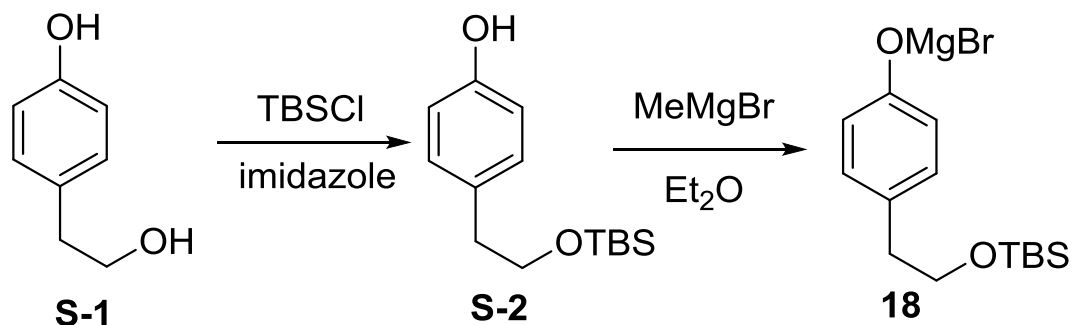
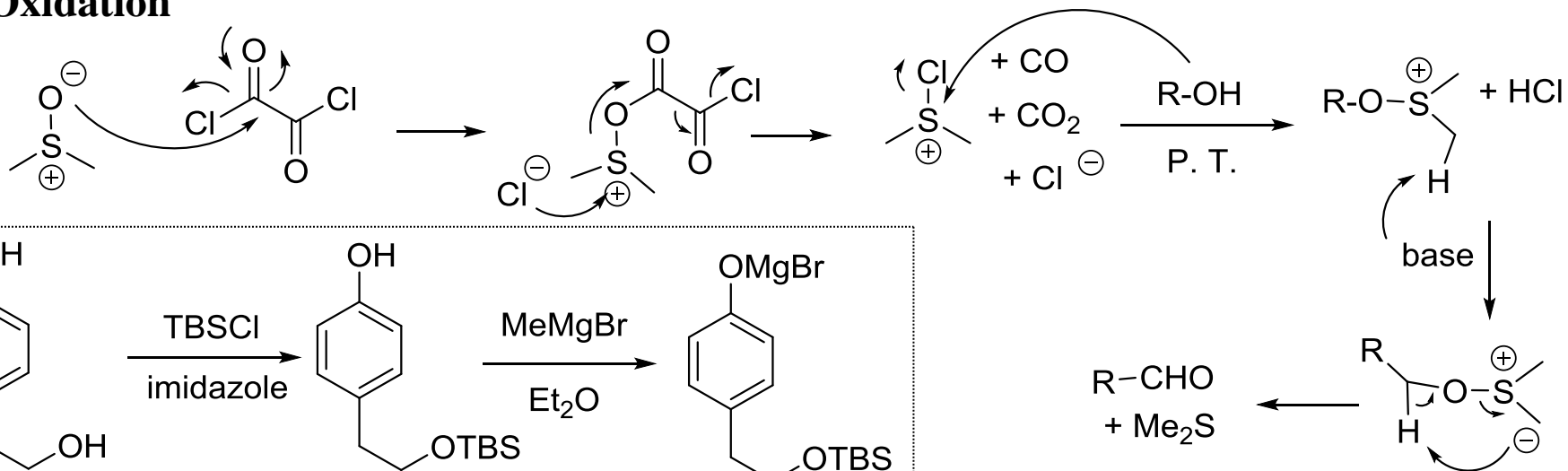




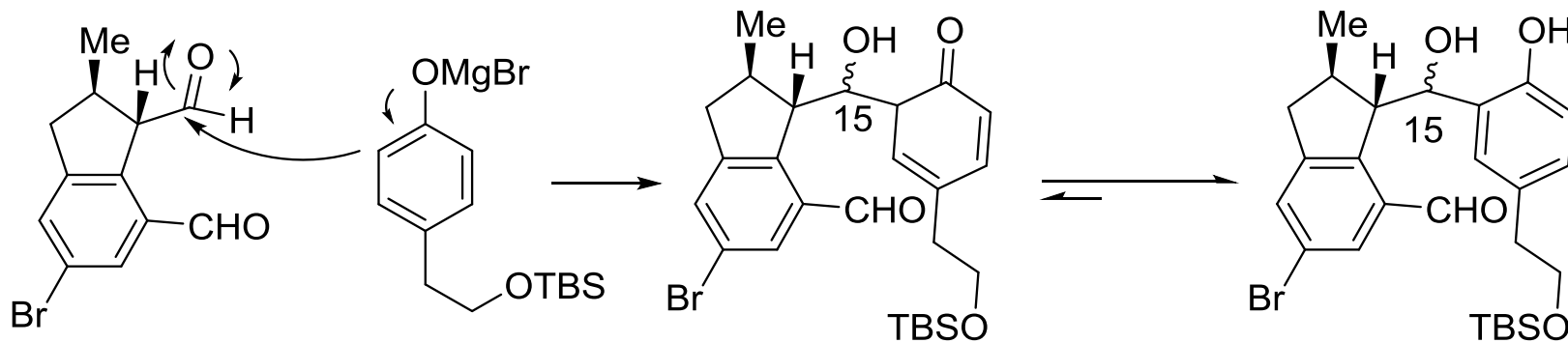


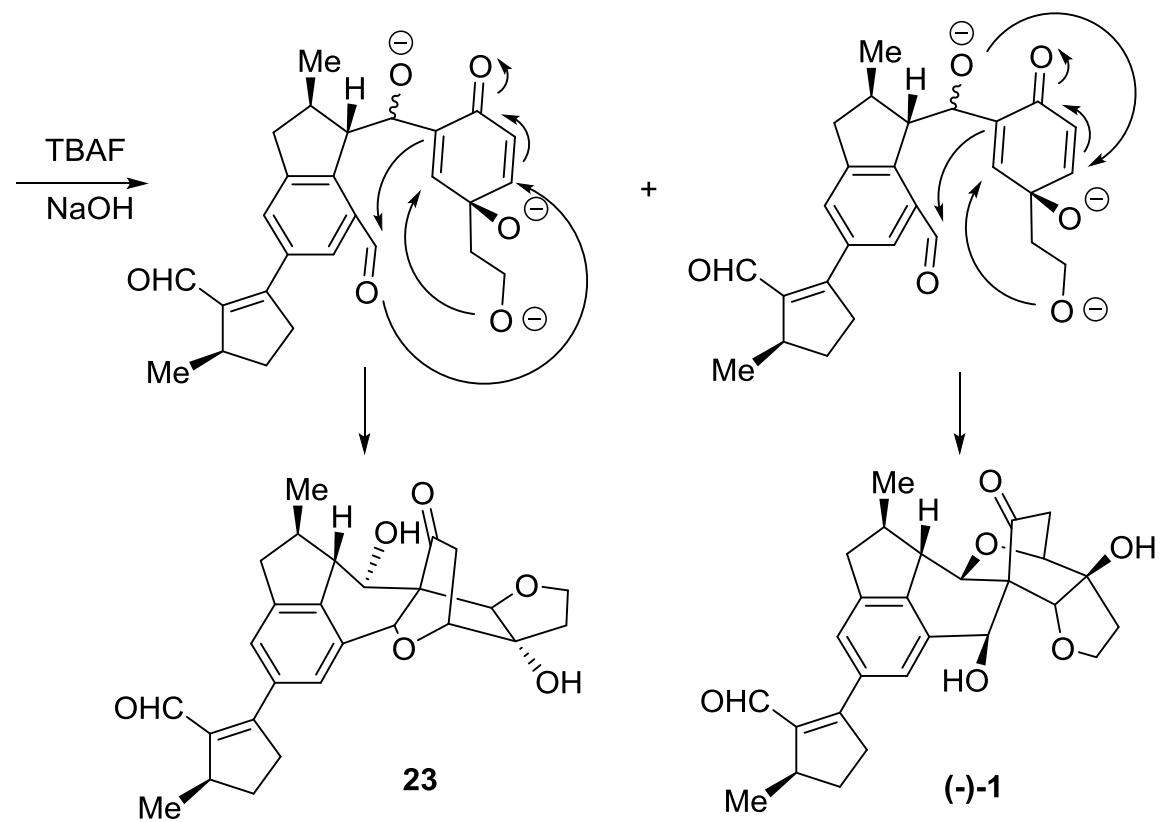
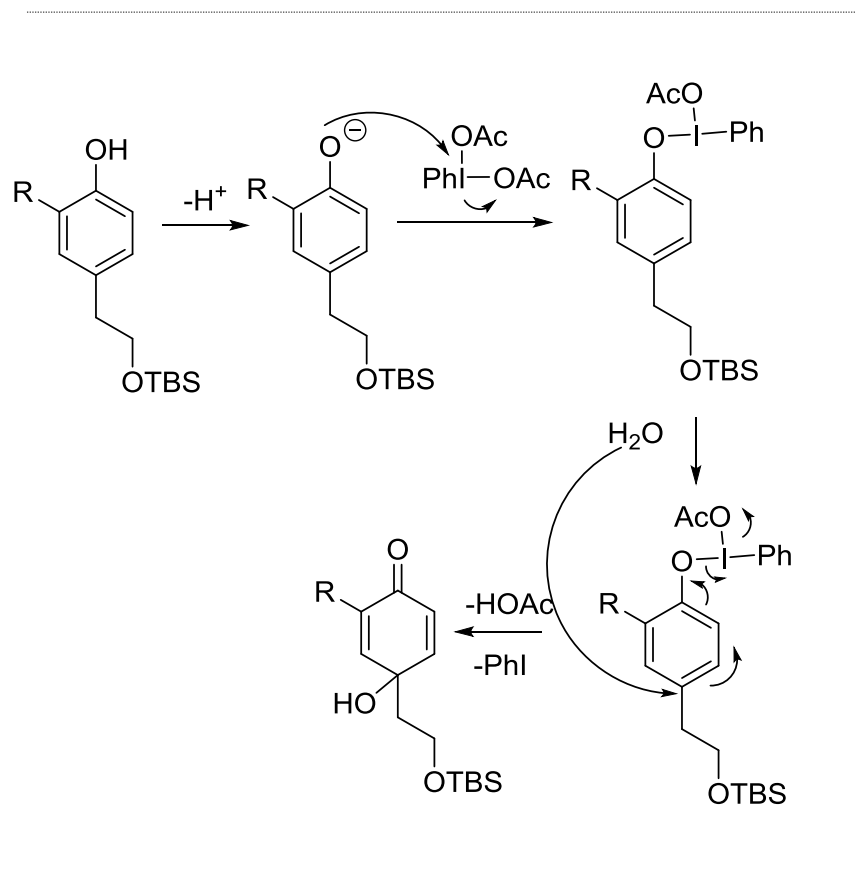
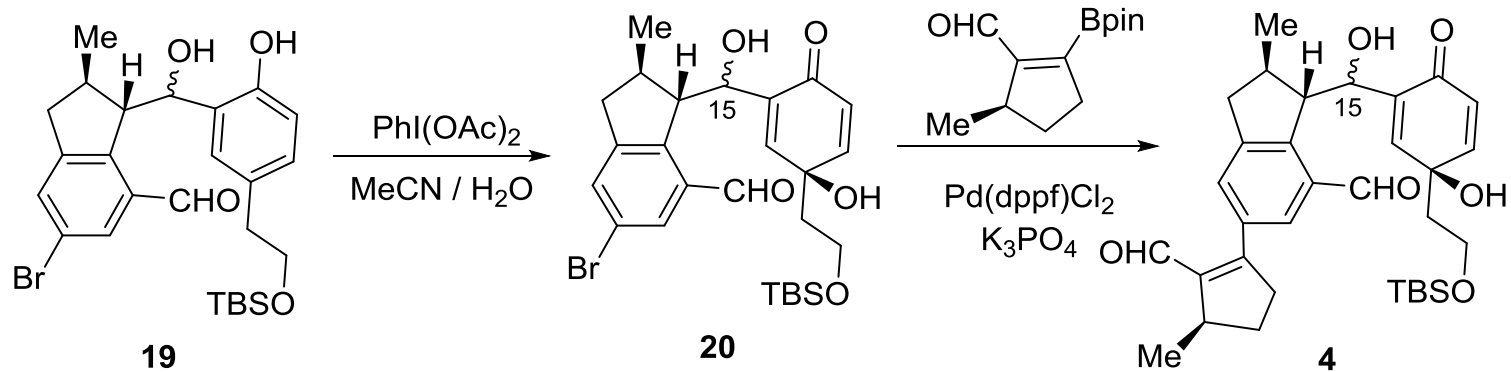


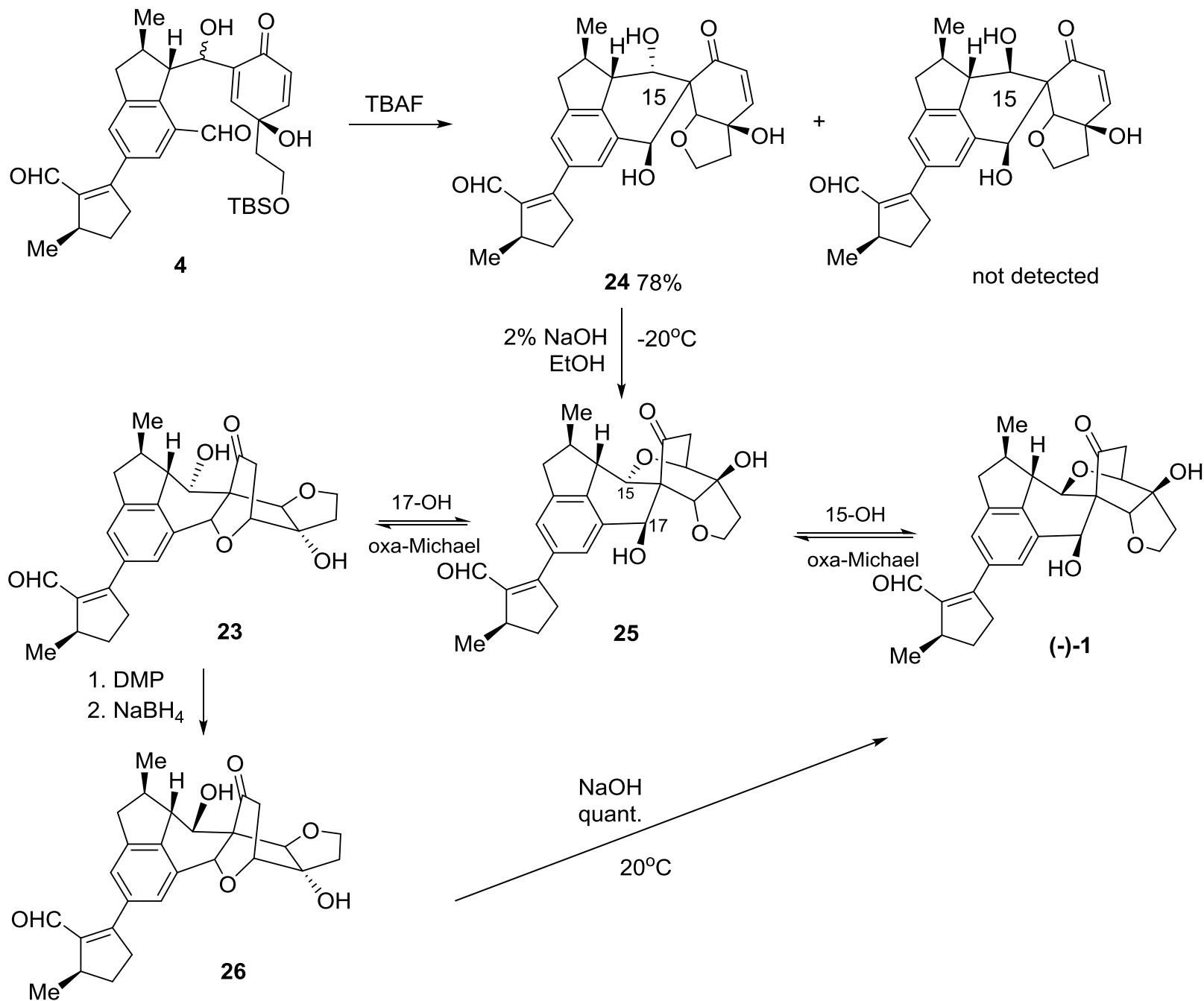
Swern Oxidation



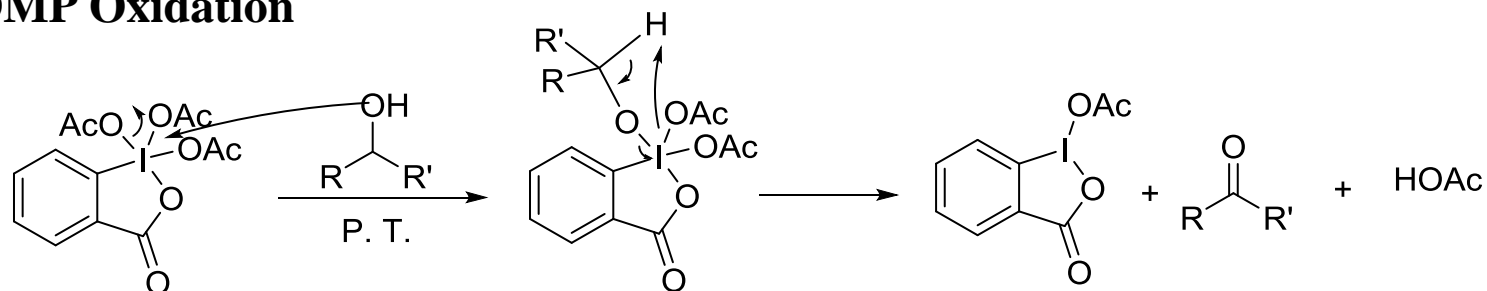
Phenolic aldol condensation







DMP Oxidation



Conclusion:

- 14 steps for the longest linear route and 18 steps in total
- Established a scalable and sequential C-H functionalization process for indane
- Identify a striking biomimetic cascade reaction