

Total Synthesis of the Proposed Structure of (\pm)-Nidemone



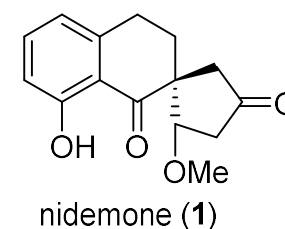
Hsu, D. S., Yeh, J. -Y., Cheng, C. -Y. *Org. Lett.* **2017**, 56, ASAP.

Nidemone (**1**) possesses a novel benzo-fused spiro[4.5]decane framework and a β -methoxy- α,β -unsaturated enone moiety.

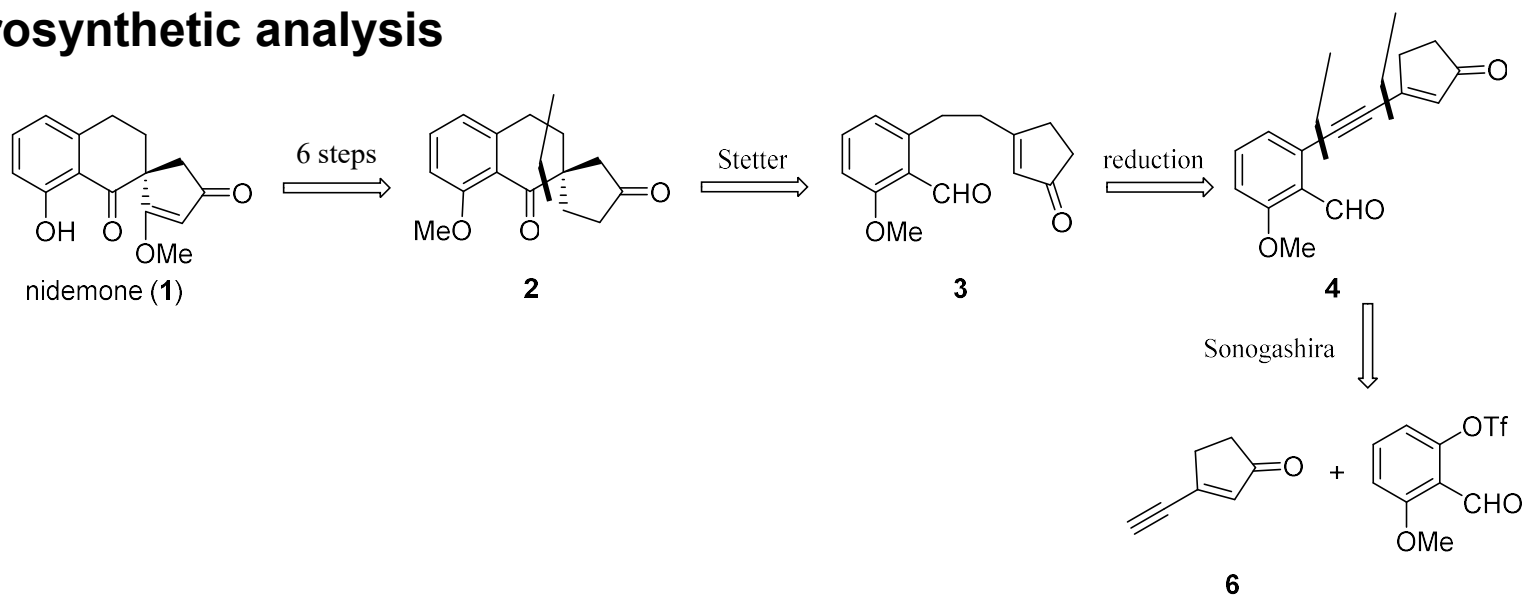
It was isolated from an orchid, *Nidema boothii*, in 2004.

Nidemone exhibits some interesting biological activities.

This article deals with a 13-step synthesis of Nidemone

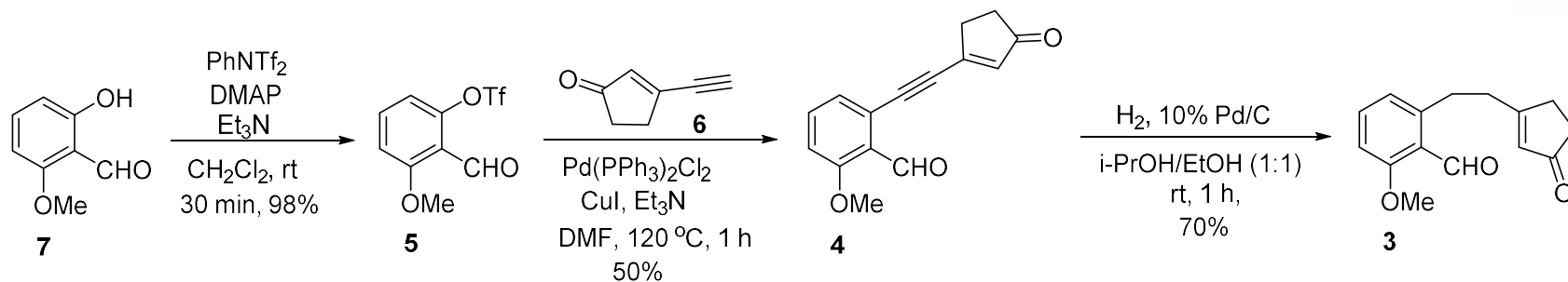


Retrosynthetic analysis

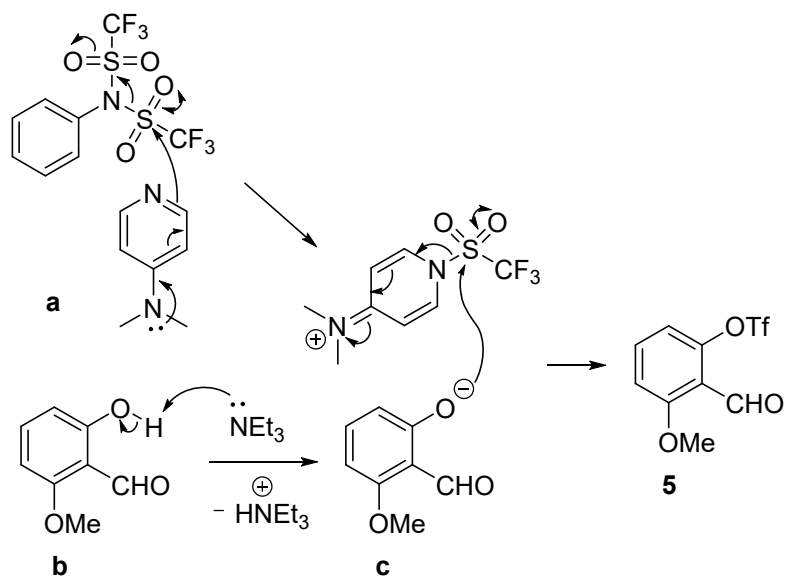




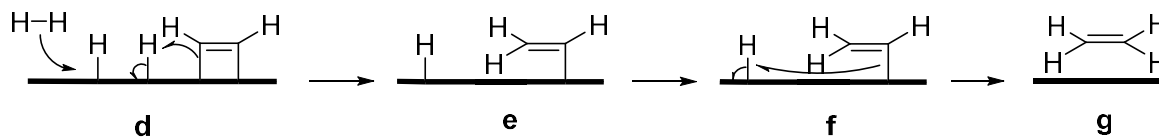
Synthesis of compound 3 from 7



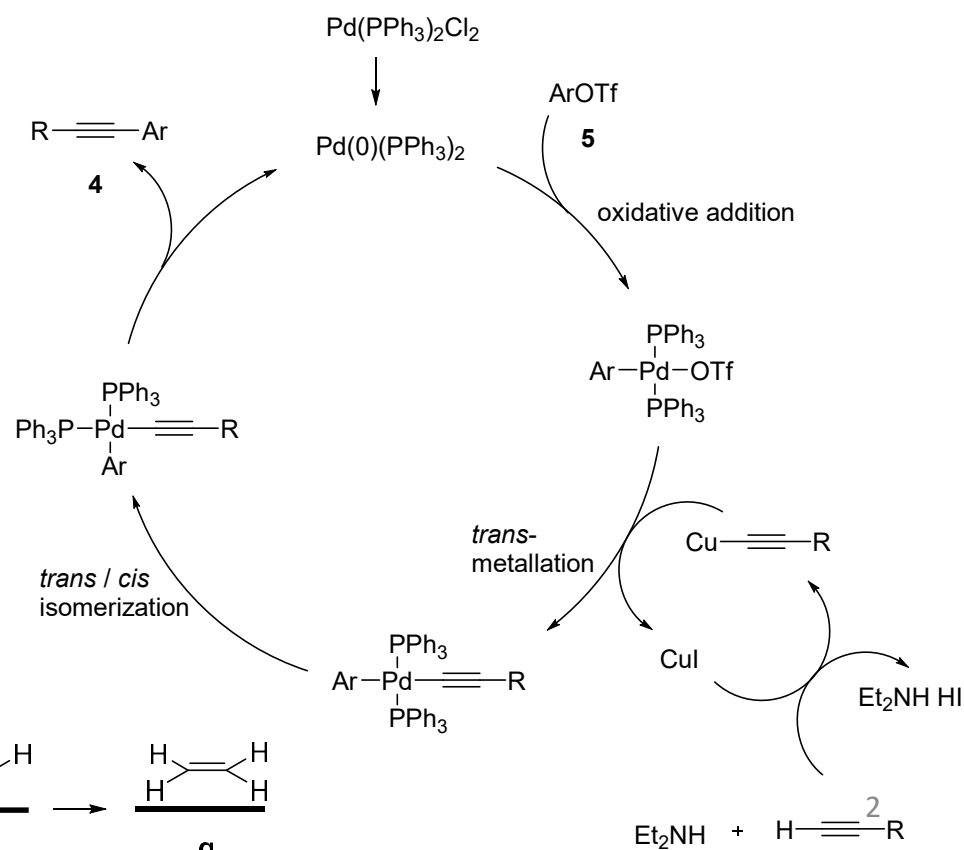
Triflation



Reduction

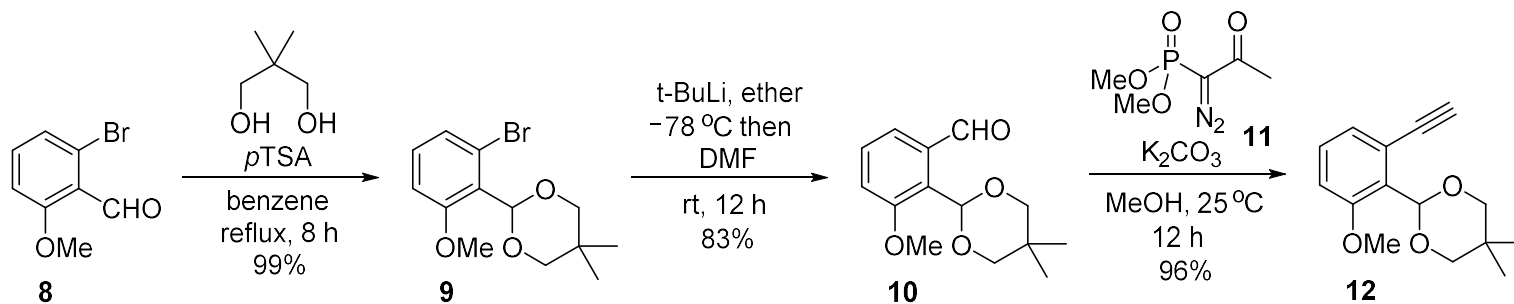


Sonogashira coupling

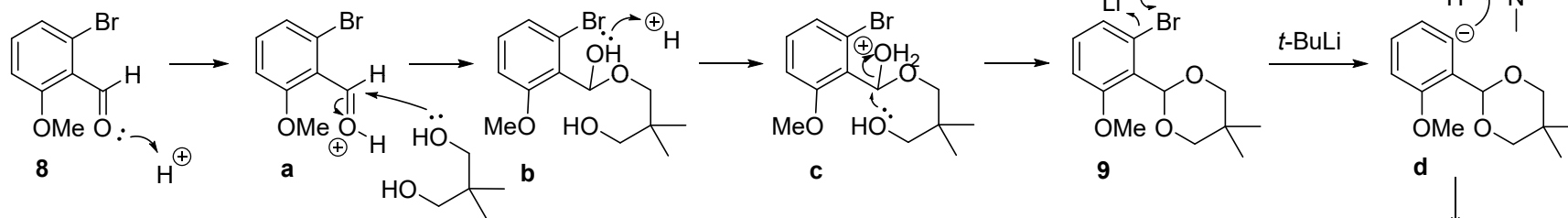




Synthesis of compound 3 from 8

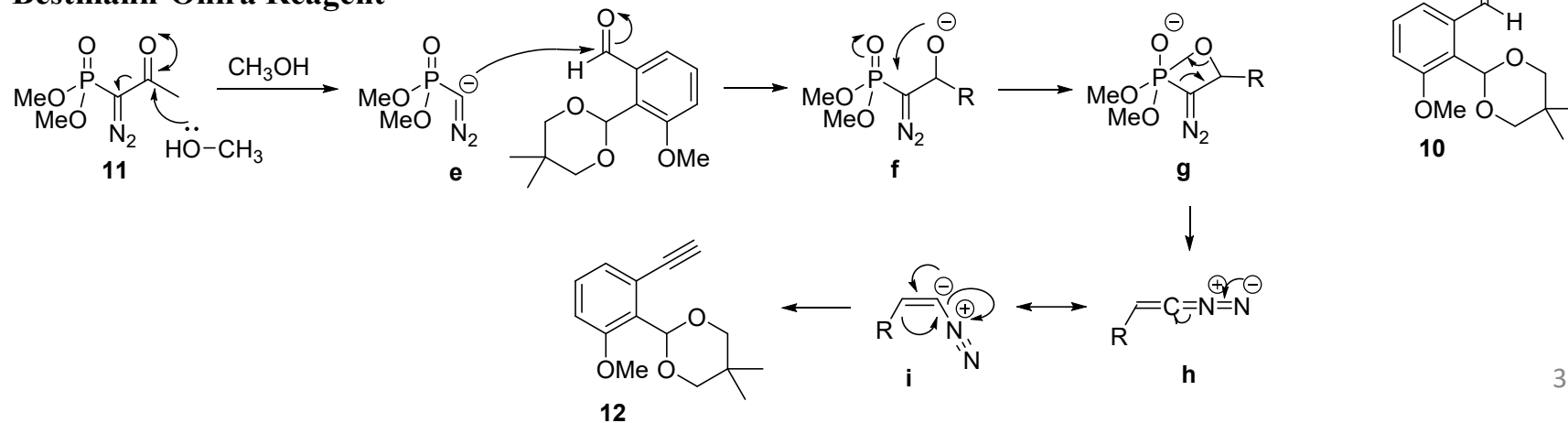


Aldehyde protection



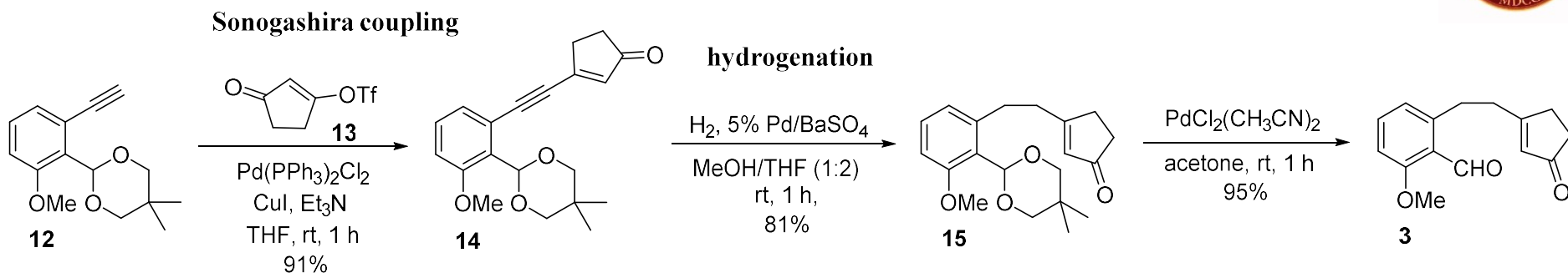
Li-Br exchange/ formylation

Bestmann-Ohira Reagent

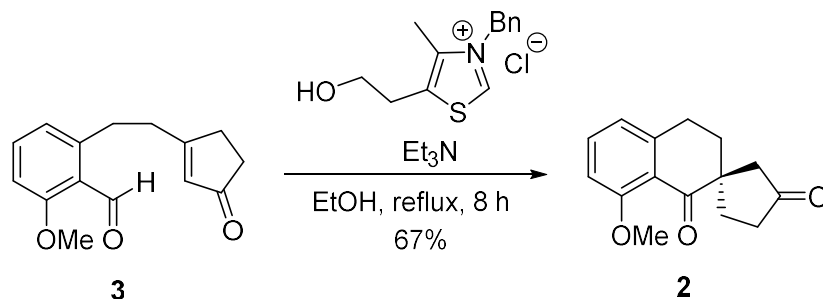
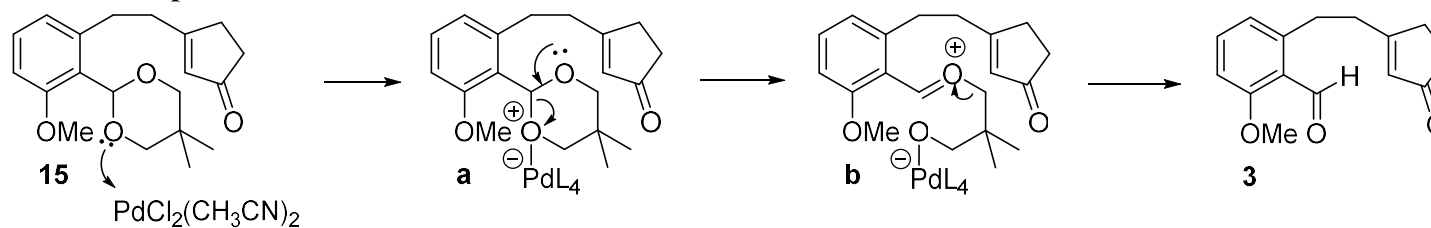




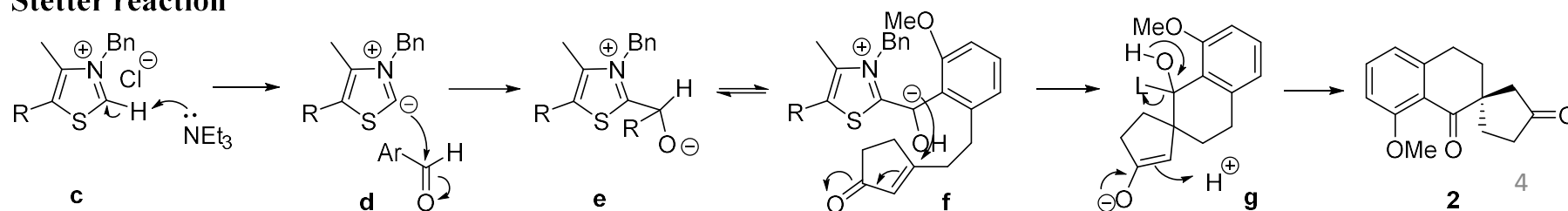
Synthesis of compound 3 from 8 and Stetter reaction



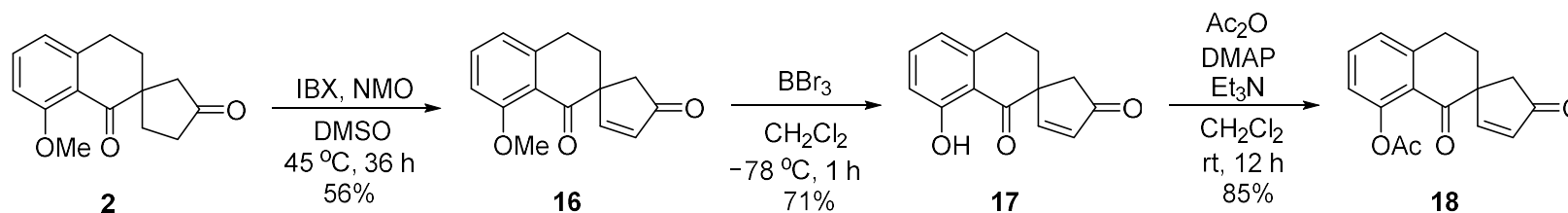
Acetal deprotection



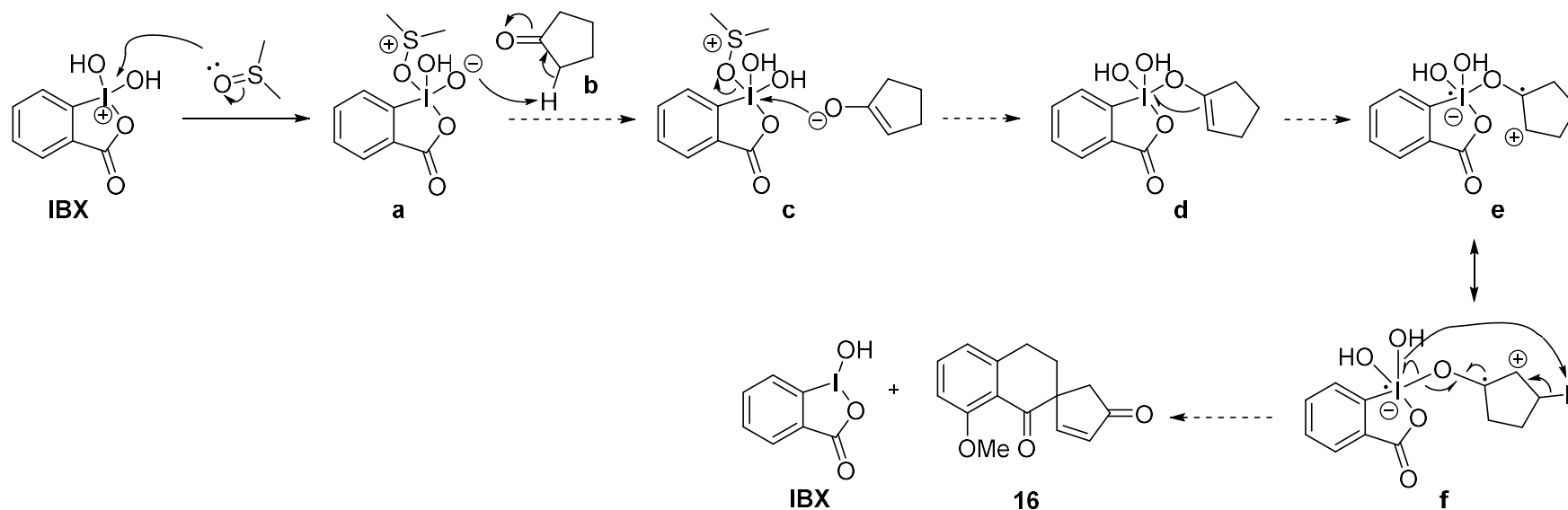
Stetter reaction



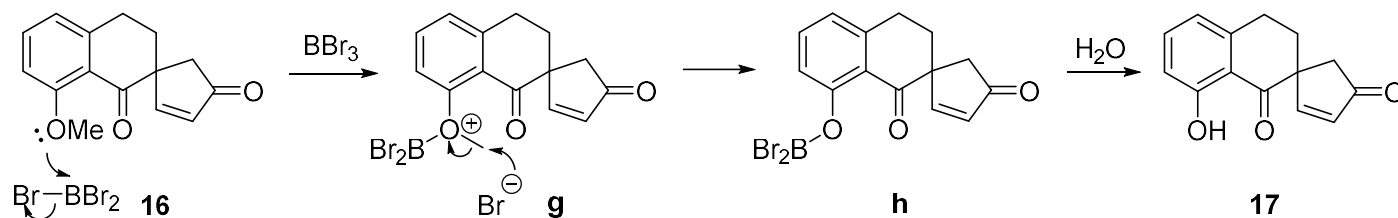
Installation of methyl enol ether group on the cyclopentanone



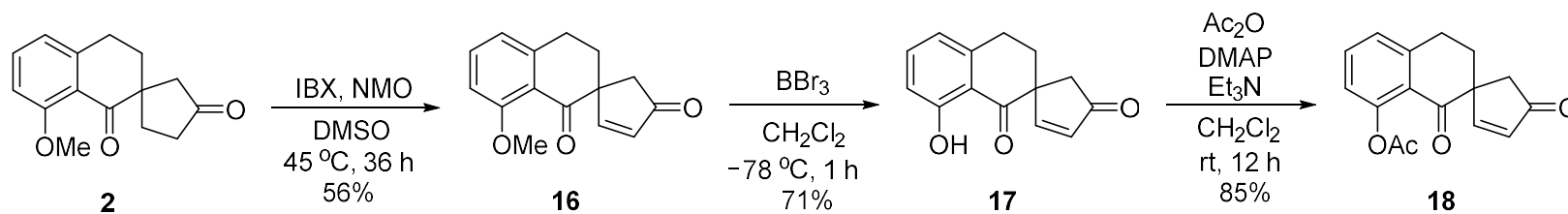
IBX.NMO complex mediated oxidation



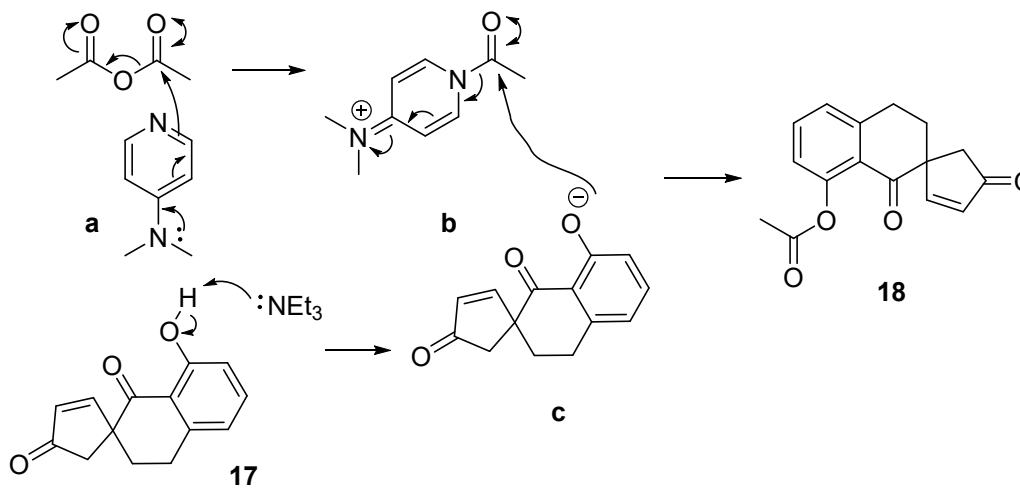
BBr₃ mediated deprotection of alcohol



Installation of methyl enol ether group on the cyclopentanone

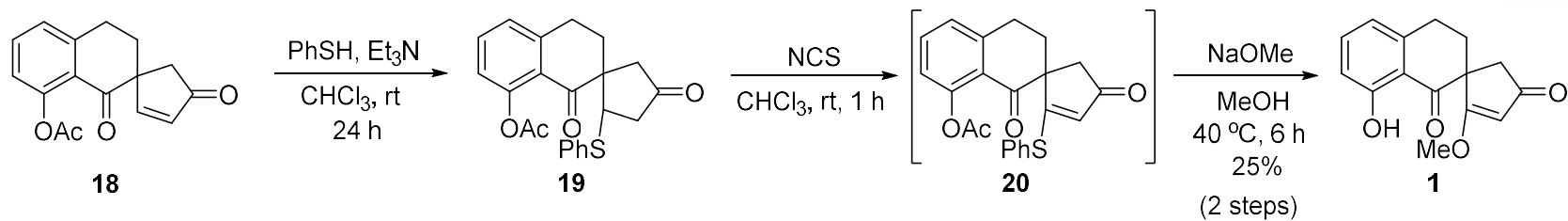


Alcohol protection

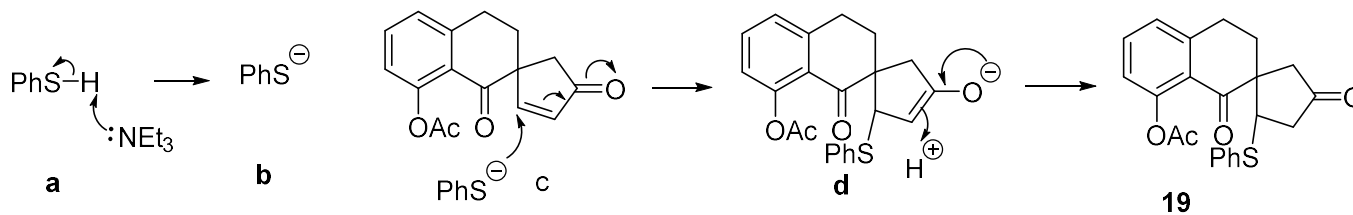




Mechanistic explanation



Michael addition



Enol ether formation and alcohol deprotection

