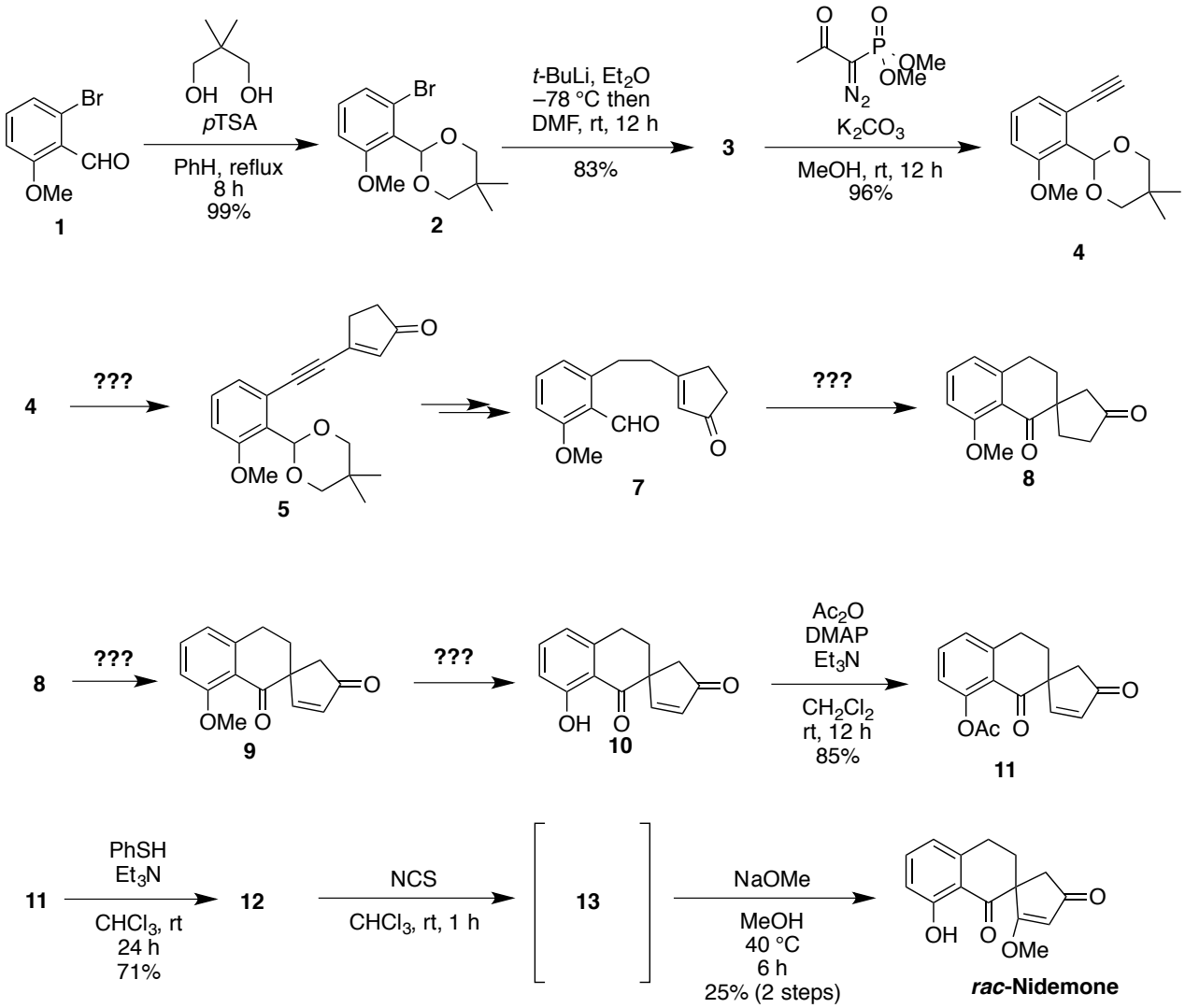
Submitted by Nicolas Volkoff

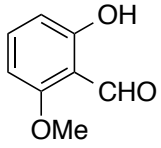
Total Synthesis of the Proposed Structure of (±)-Nidemone



1. **Give the missing structure and mechanism to obtain 4 from 2**
2. **Find conditions and the name of the reaction to form 5**
3. **Find conditions and the name of the reaction to form 8**
4. **Find some conditions to obtain 9 and 10**
5. **Give the missing structures 12 and 13**

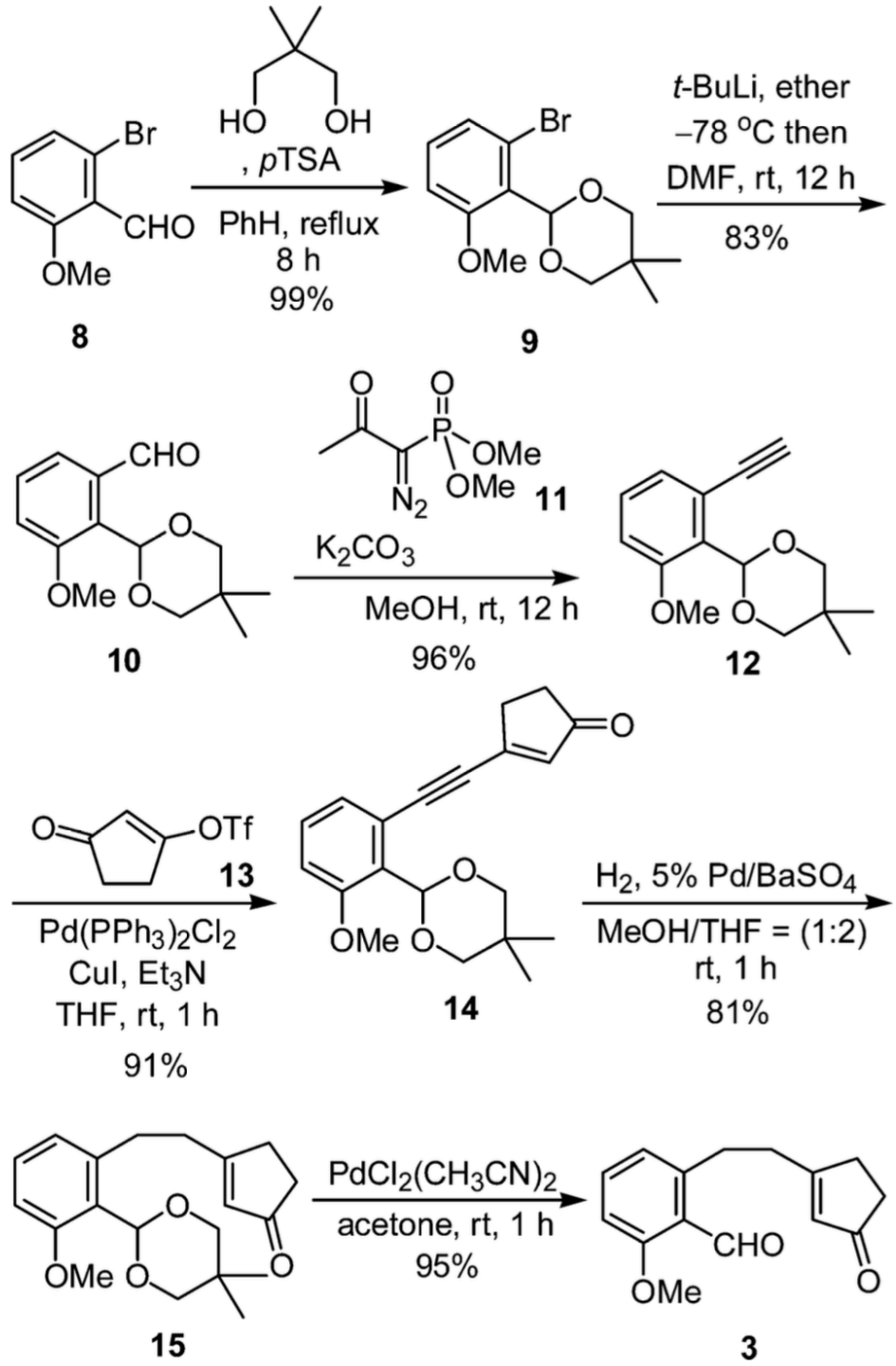
BONUS if enough time

6. **Propose a 3 steps pathway to obtain 7 from**



Solution (different numbers)

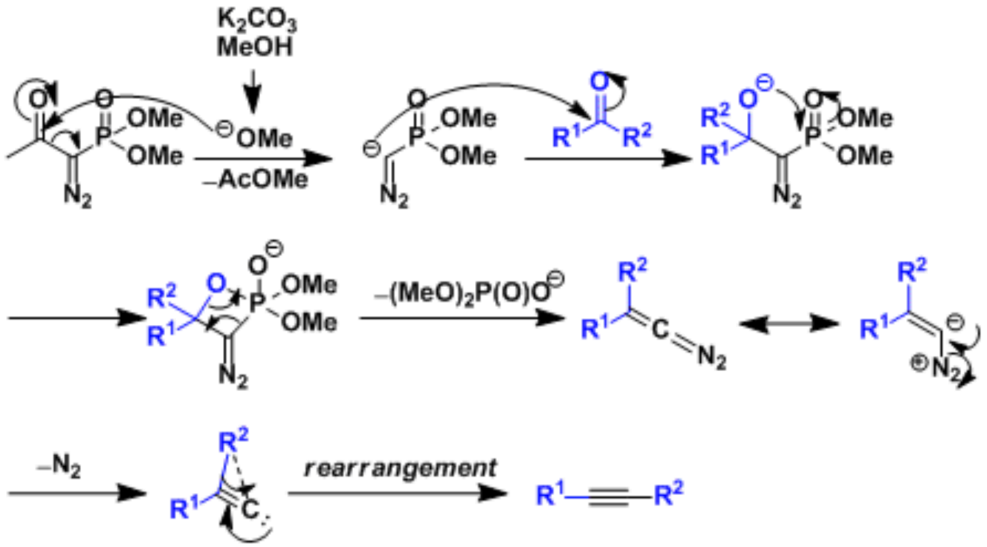
1. **Give the missing structure and mechanism to obtain 12 from 9**
2. **Find conditions and the name of the reaction to form 14**



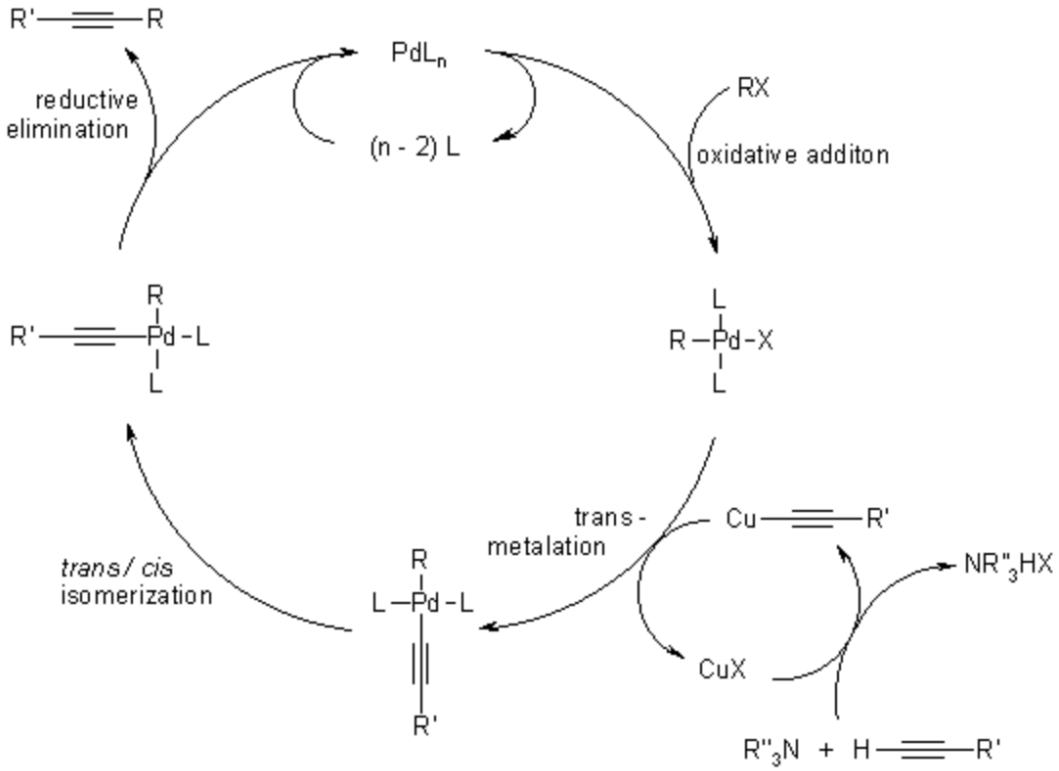
1)
- Lithium halogen exchange followed by attack of the aryl Lithium formed on DMF to obtain the aldehyde (**10** on this scheme) and dimethyl amine

- Bestmann Ohira modification of the Seyferth-Gilbert homologation to obtain alkyne (**12** on this scheme**)**

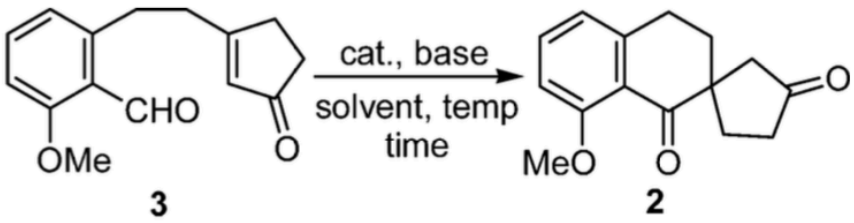
Here R^1 is an Hydrogen..



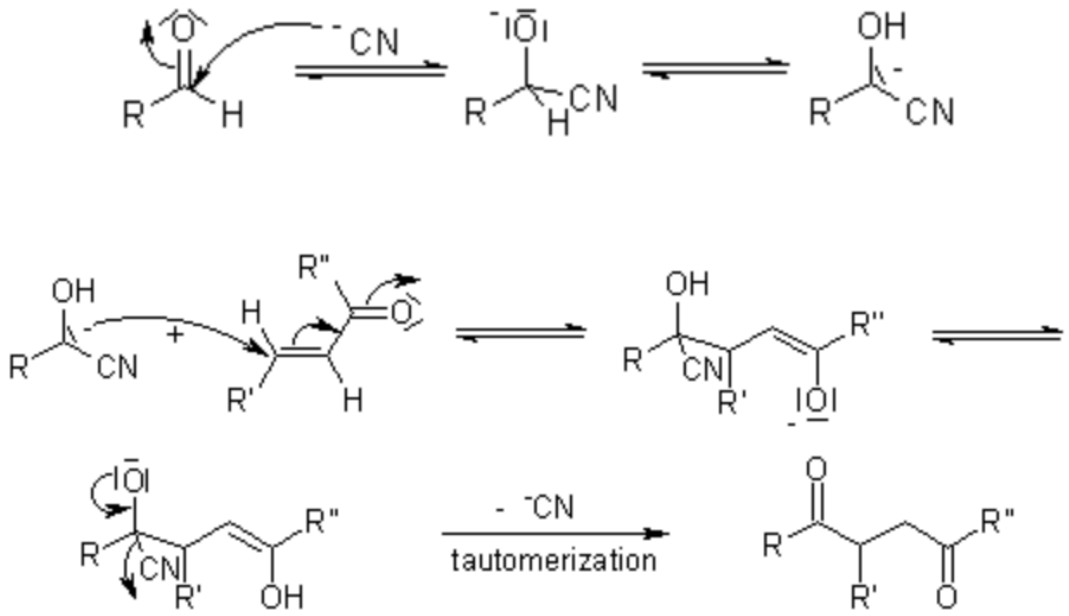
2) Sonogashira coupling between the alkyne and the triflate



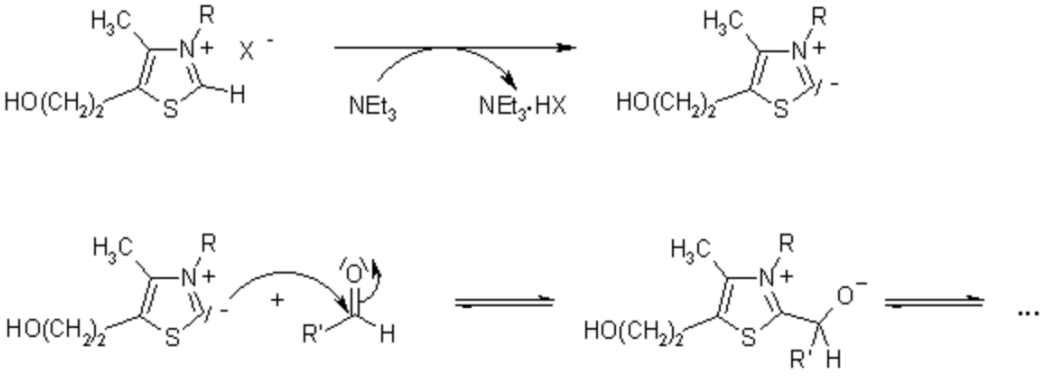
3. Find conditions and the name of the reaction to form 2



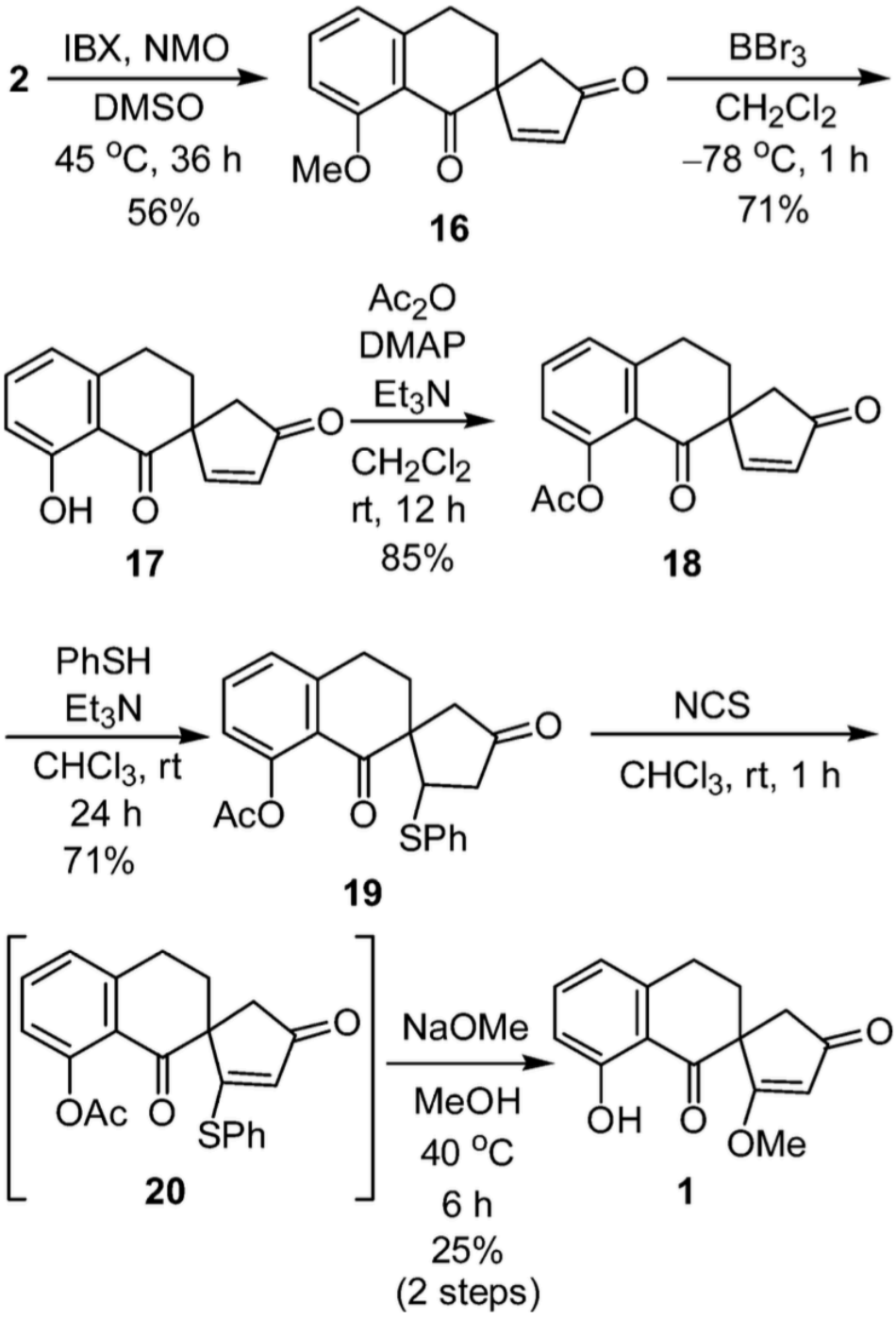
Stetter reaction



Use of thiazolium salt instead of cyanide in this case

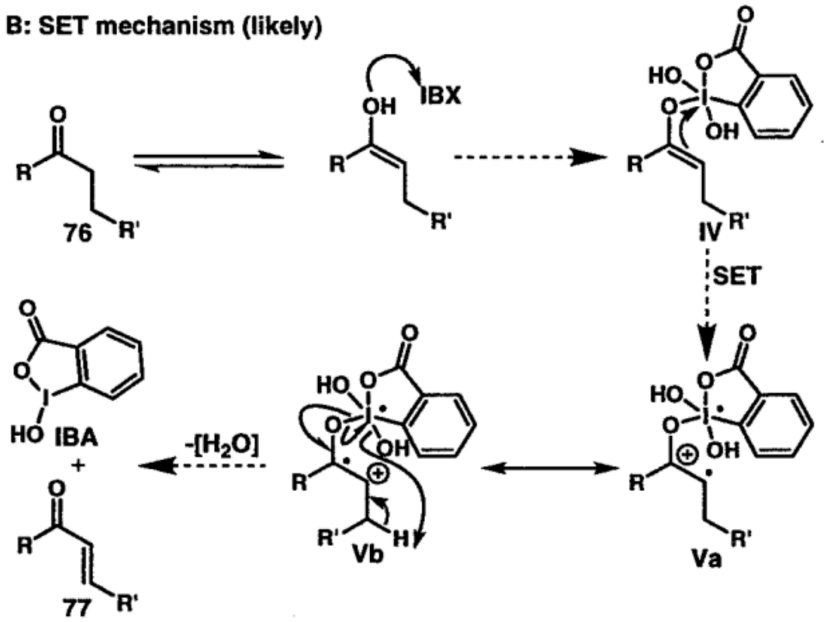


4. **Find some conditions to obtain 16 and 17**
5. **Give the missing structures 19 and 20**

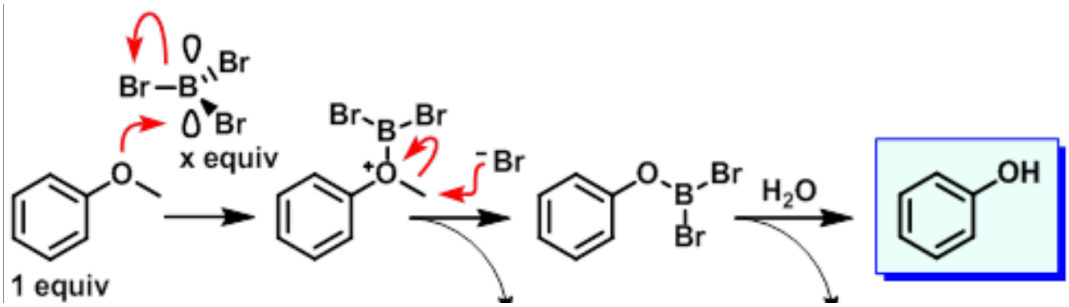


4)

- IBX mechanism



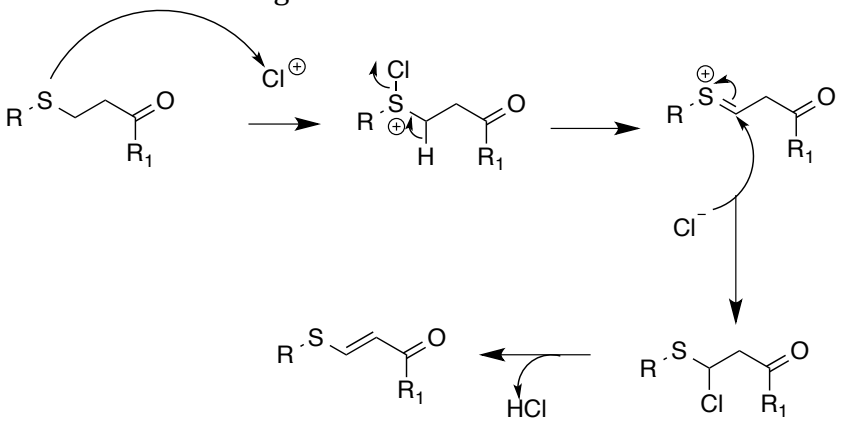
-BBr_3 Mechanism



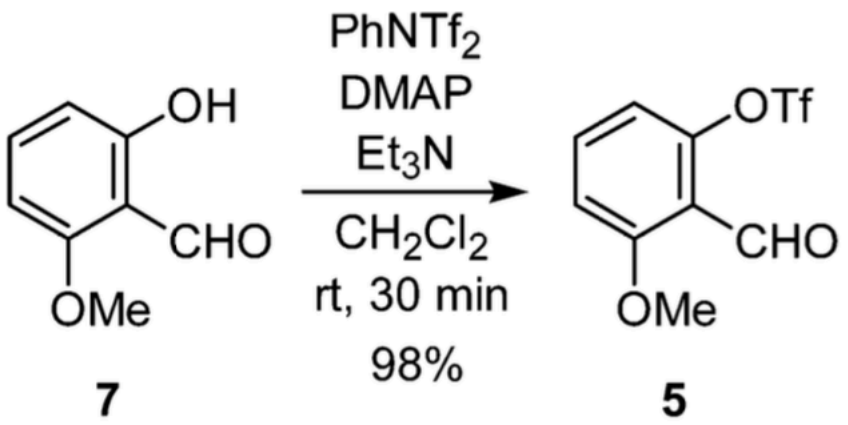
5)

-For **19** Michael addition of the PhSH on the enone

-for **20** Pummerer like rearangement



Bonus Question



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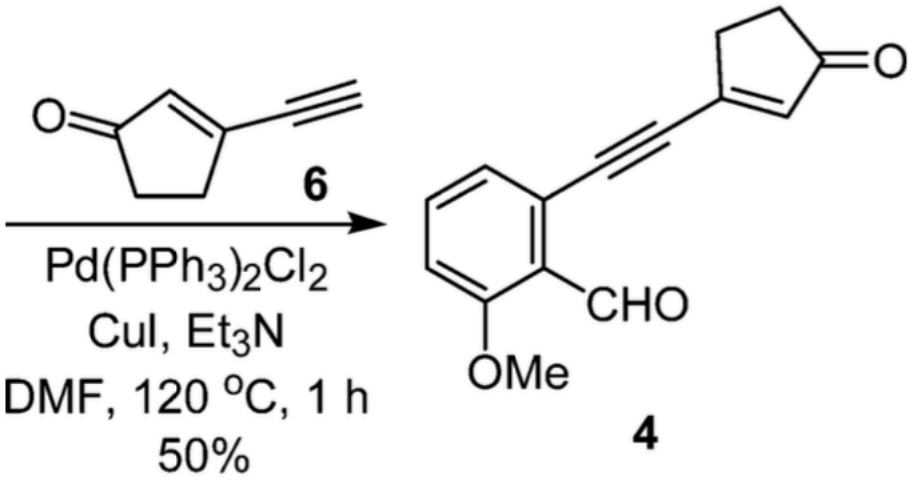

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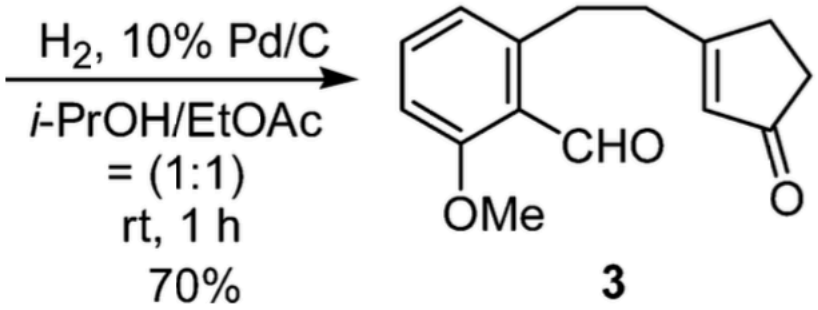

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