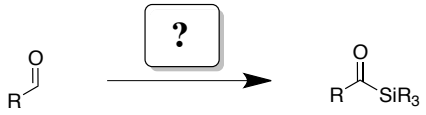
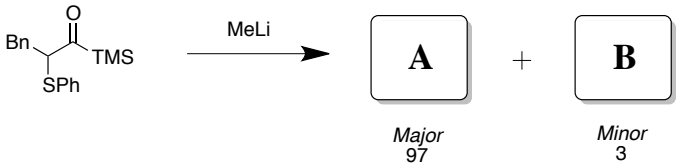
Part 1

Some interesting reactions… Discuss mechanisms and indicate reagents/ products (where required) for the following transformations. *N.B.* more than one step may be required. The questions focus on two separate themes.

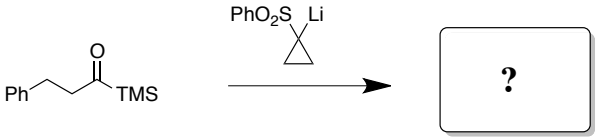
1)



2) Selectivity?

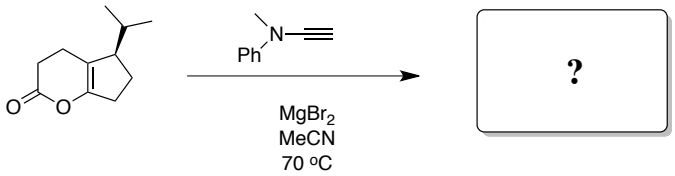


3)

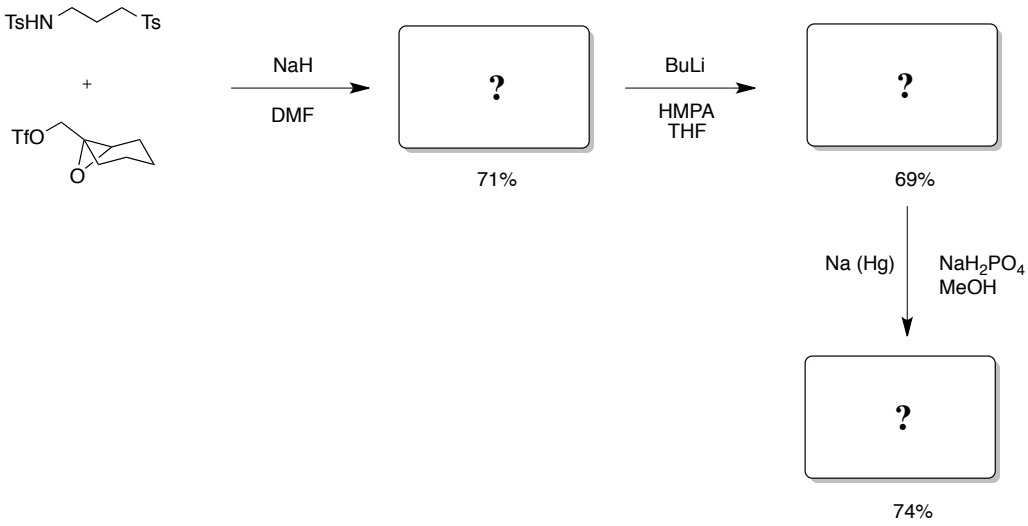


4)

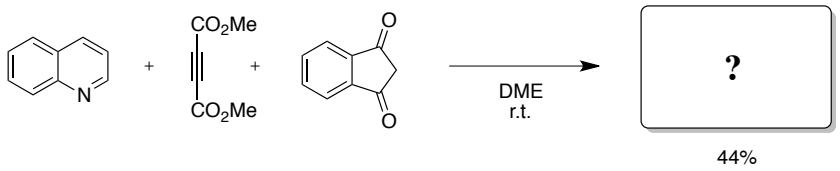
5)



6)

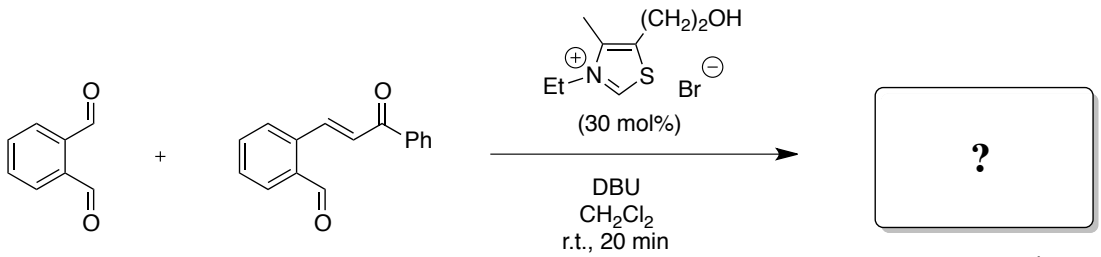


7)



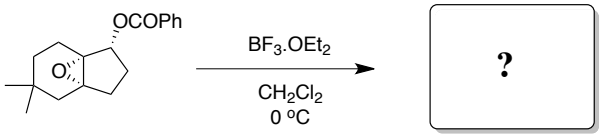
44%

8)



71%, 1:1 *dr*

9)



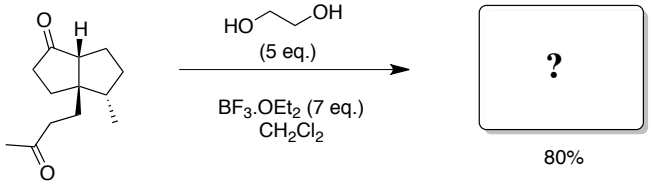
Queue Alan:
"How would you make this SM??"

95%, 91% *e.e.*

10)

87%

11)

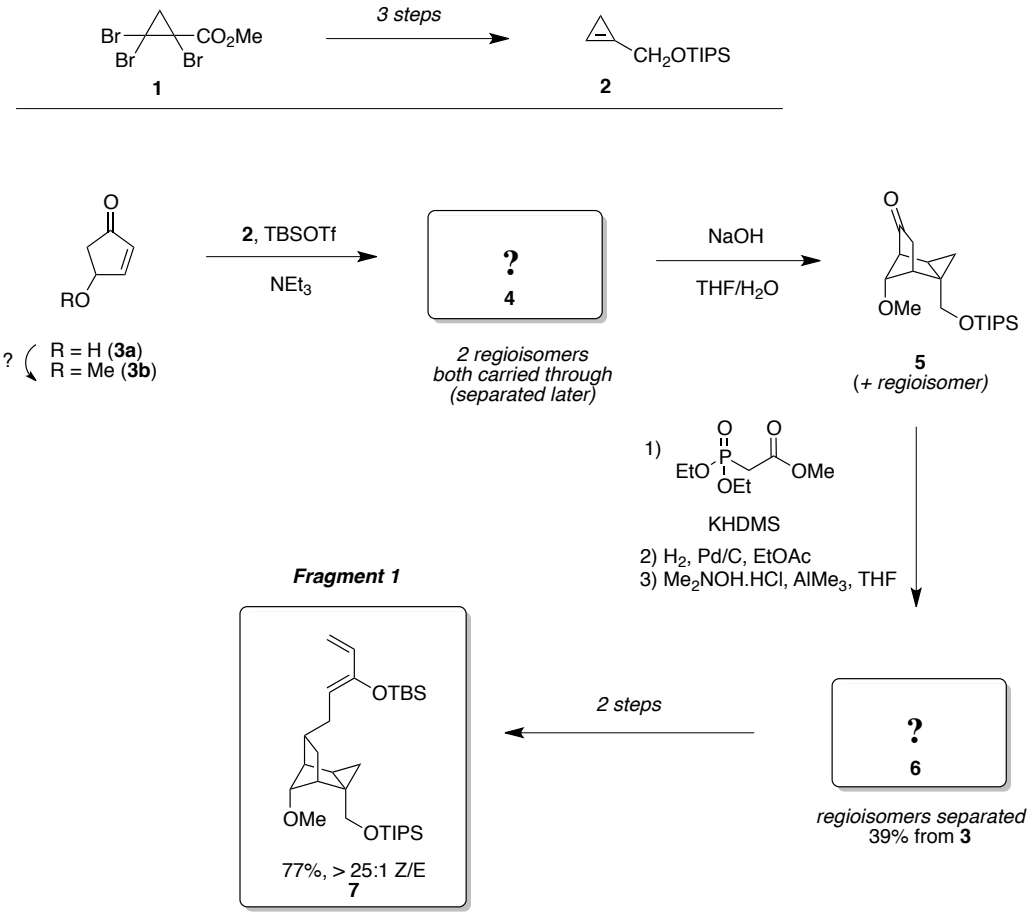


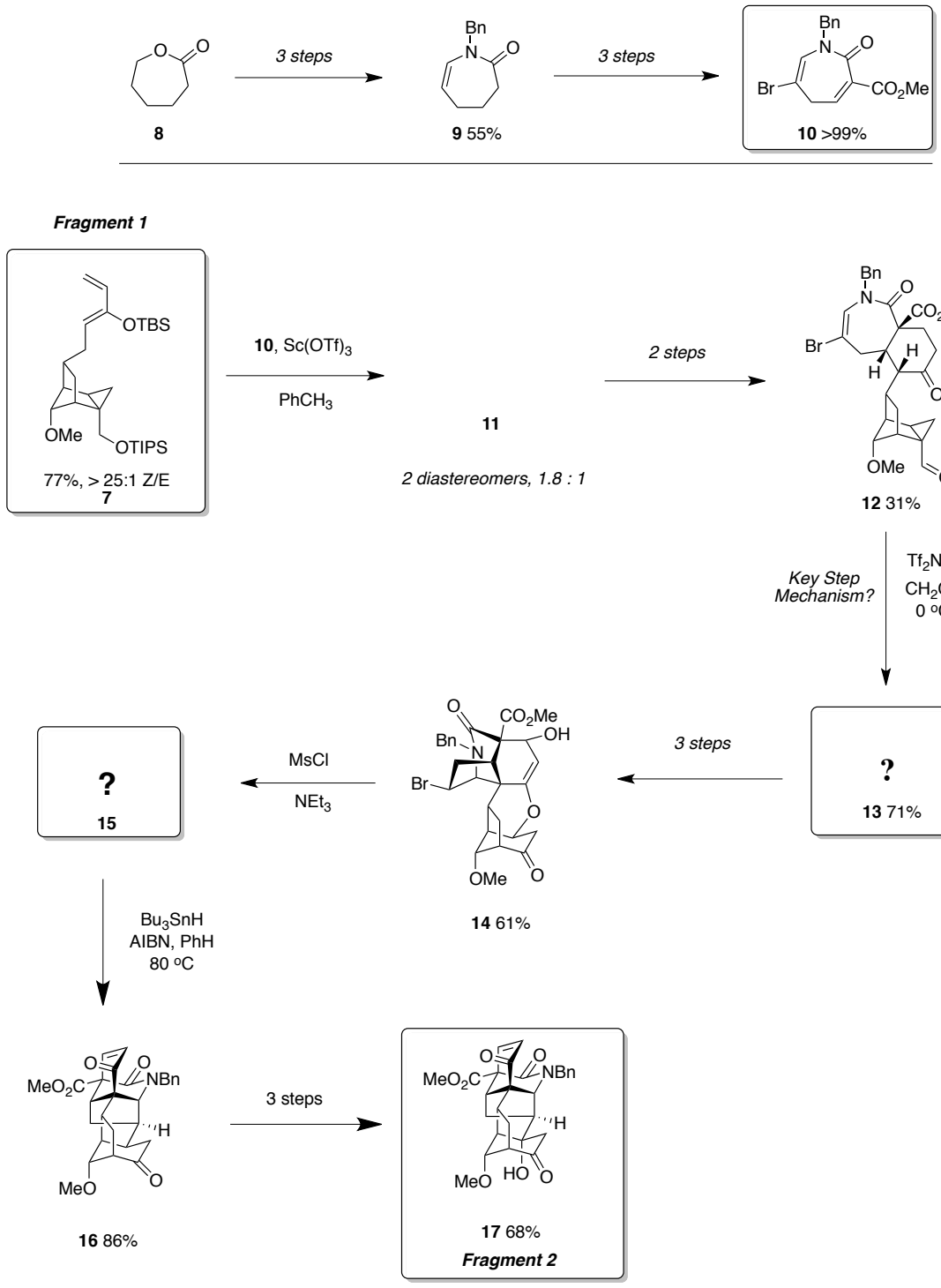
80%

Part 2: Time to totally synthesise that

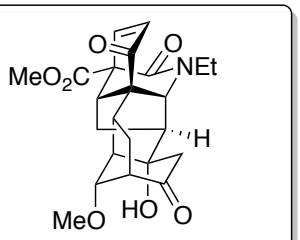
The scheme below describes the first total synthesis of **X**, which was isolated from **Y** + **Z**. This class of compound has been used extensively in traditional Chinese and Japanese medicines for many years and display potent antiarrythmic and analgesic properties. I would like to tell you more, but Alex will just look up the synthesis. Enjoy.

Fragment 1





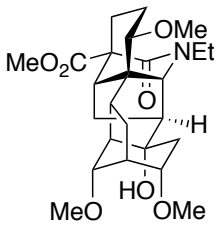
Unfortunately, after getting to this advanced intermediate they discovered they couldn't work with Bn protected amide, which they were planning on converting to the Et protected amide…. So they went back and used the Et protected amide for the 'end game.'



17b

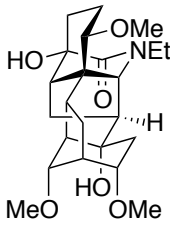
Fragment 2b

3 steps



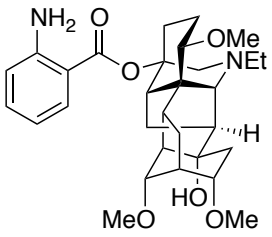
18 38%

2 steps



19 40%

3 steps



20 13%

"The end"