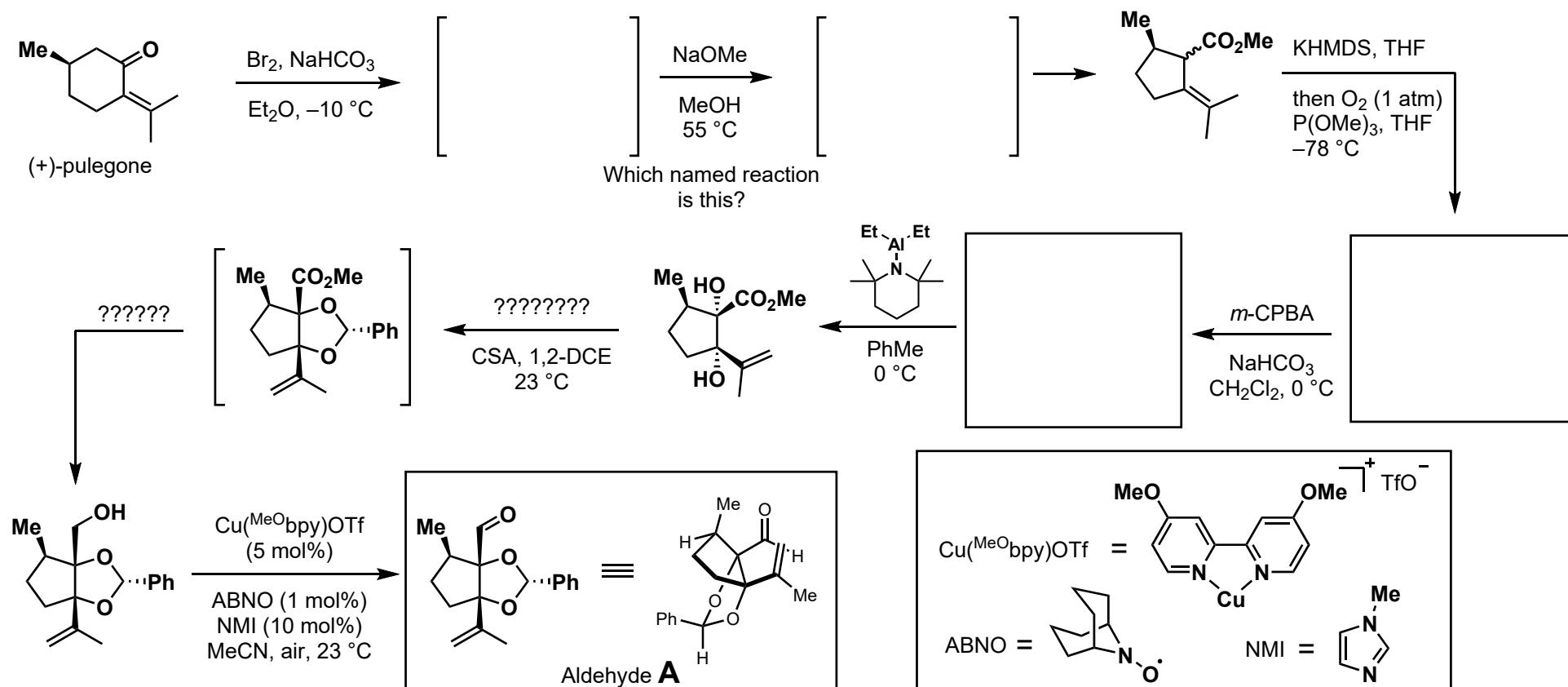
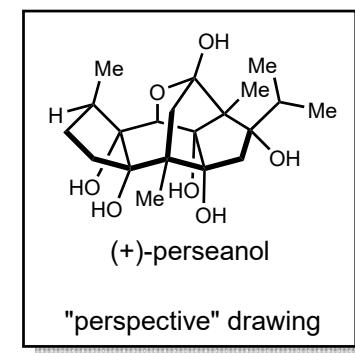


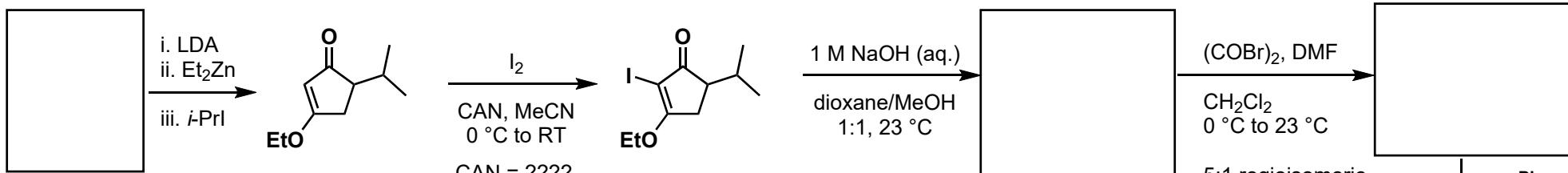
A 16-step synthesis of the isoryanodane diterpene (+)-perseanol

Han, A.; Tao, Y.; Resiman, S. E.

Nature, 2019, 573, 563–568.



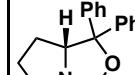
What is special about these reaction conditions?
i.e. Why did S. Stahl and co-workers invent a reaction with so many components when you could also just use Dess–Martin, Swern, PCC, etc.



What are the intermediates of each step?

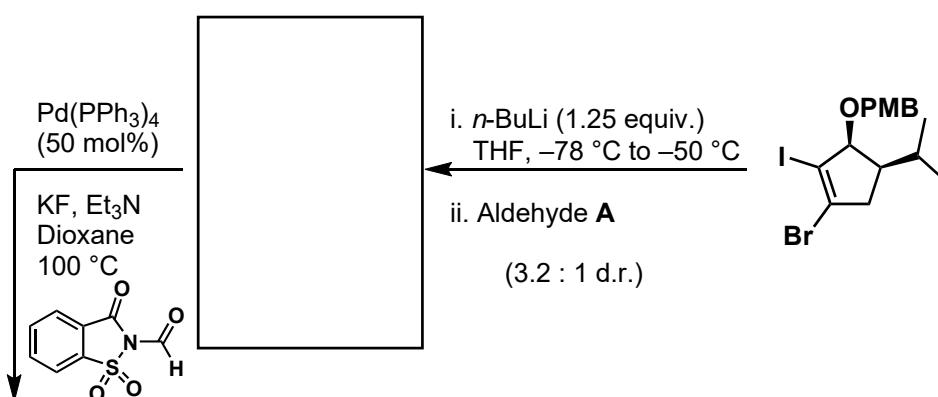
What are more traditional conditions for this type of reaction?
CAN = ????

5:1 regioisomeric ratio

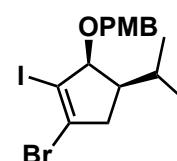


40 mol%

$\text{BH}_3 \cdot \text{NEt}_2 \text{PH}$
(0.7 equiv.)
 CH_2Cl_2
23 °C



i. $n\text{-BuLi}$ (1.25 equiv.)
THF, -78 °C to -50 °C
ii. Aldehyde A
(3.2 : 1 d.r.)



What is the structure?

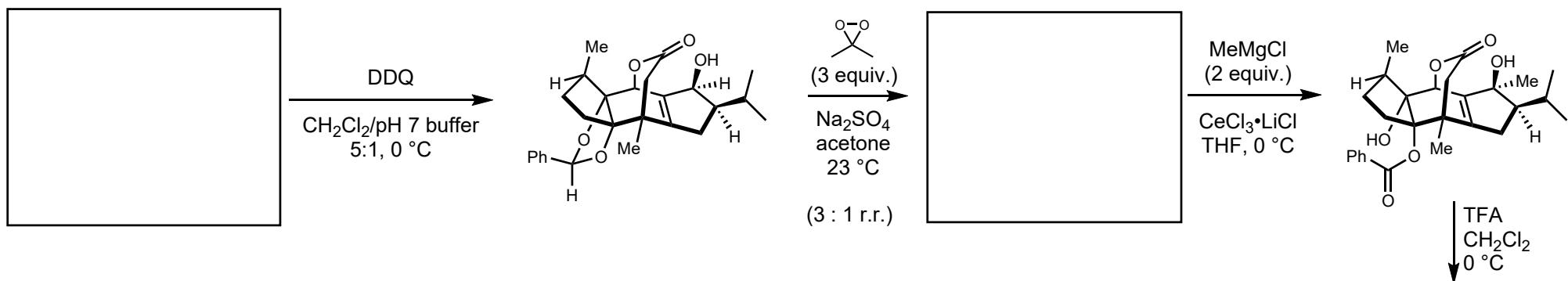
CSA
(0.2 equiv.)
PMB-protected quinoline
 CH_2Cl_2 , 23 °C

Iodinated cyclopentenone
44% yield
91% e.e.

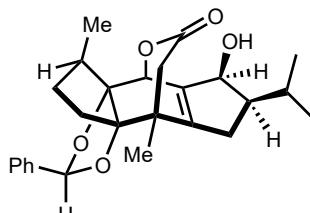
56% yield
68% e.e.

How do you generally classify this type of transformation that converts a racemate to enantiomerically enriched products?

Hint: KF, Et3N, and N-formylsaccharine react to slowly release a gaseous molecule.

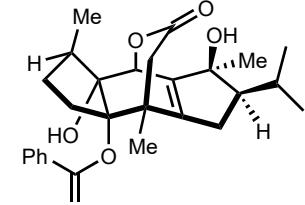


DDQ
 $\text{CH}_2\text{Cl}_2/\text{pH } 7 \text{ buffer}$
5:1, 0 °C



(3 equiv.)
 Na_2SO_4
acetone
23 °C
(3 : 1 r.r.)

MeMgCl
(2 equiv.)
 $\text{CeCl}_3 \cdot \text{LiCl}$
 THF , 0 °C



TFA
 CH_2Cl_2
0 °C

