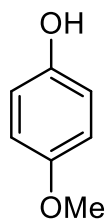


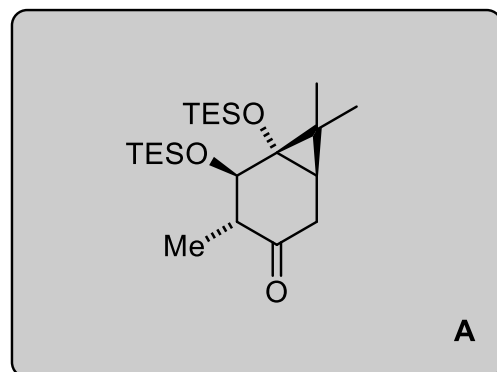
Enantioselective Total Synthesis of (+)-Pedrolide

Marlene Fadel and Erick M. Carreira

Journal of the American Chemical Society **2023** *145* (15), 8332-8337

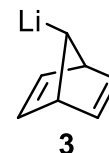
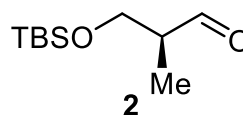
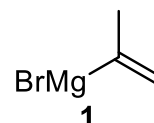
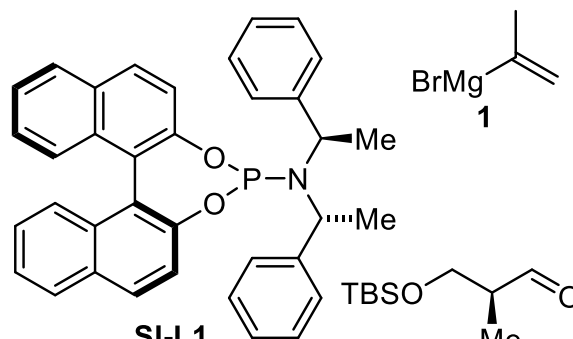


1-7



8-13

- 1) $\text{PhI}(\text{OAc})_2$, MeOH
- 2) $\text{Cu}(\text{OTf})_2$, **SI-L1**, then Me_2Zn
- 3) Me_3SiOTf , Et_3N then *m*CPBA, NaHCO_3 , then TBAF
- 4) **1**, THF
- 5) aq. NH_4Cl
- 6) Et_3SiOTf (3 eq.), 2,6-lutidine
- 7) $\text{Fe}(\text{acac})_3$, PhSiH_3



- 8) LDA, THF, -78°C then TMS-Cl
- 9) MeLi, then **2**, then Me_3SiOTf , Et_3N ,
- 10) **3**
- 11) TBAF (2 eq.)
- 12) $\text{PhI}(\text{OAc})_2$, TEMPO
- 13) MeSO_2Cl , Et_3N , DMAP, 40°C

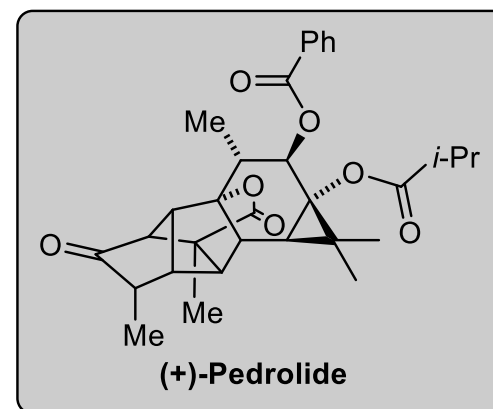
3) Name of the reaction.

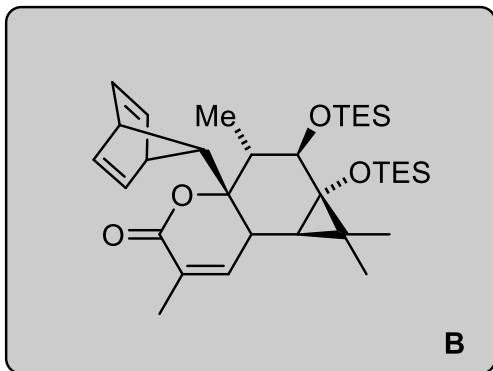
Rubottom oxidation

9) From which chiral pool building block is **2** derived from

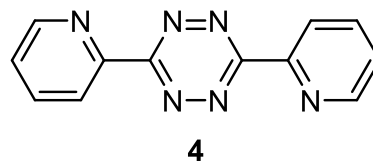
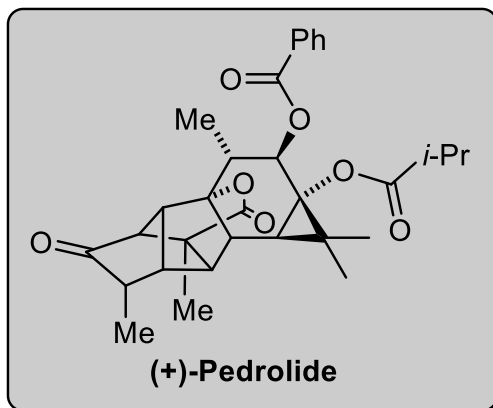
(*S*)-Roche ester (see below)

12) Hint: A new ring is formed. Structure of TEMPO and show a mechanism for the oxidation





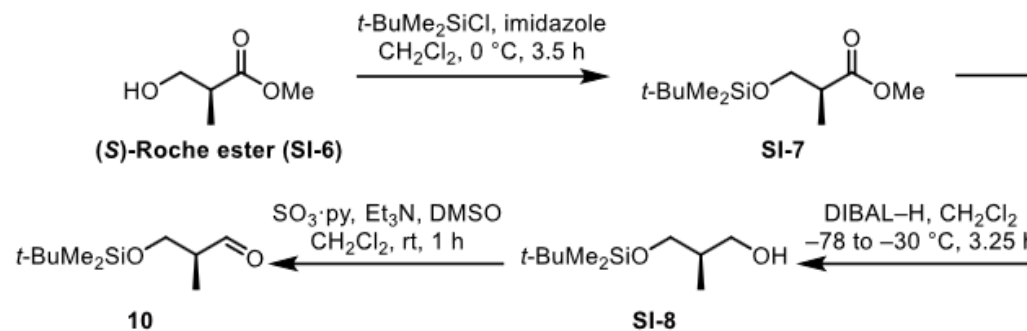
14-20



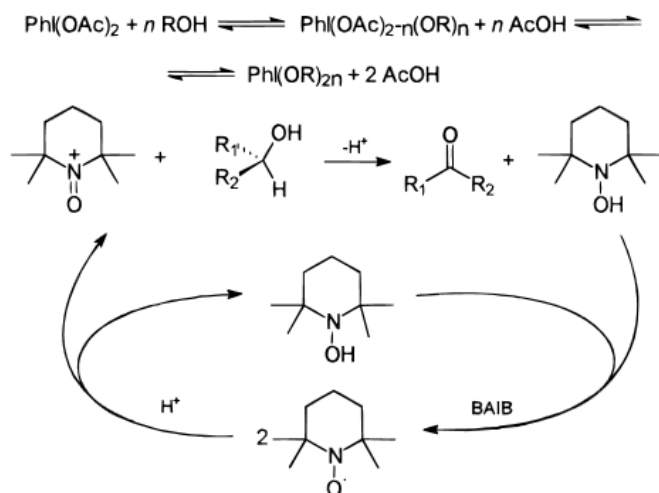
- 14) **4**, MeOH, 0°C
- 15) *m*CPBA, NaHCO₃
- 16) Me₂CuLi
- 17) DMP
- 18) HF·pyridine
- 19) *i*-PrCOCl, Et₃N
- 20) (PhCO)₂O, pyridine, DMAP

14) Please show the mechanism

Synthesis of **2**:



12) Mechanism:



Note: BAIB = PIDA
 From: *J. Org. Chem.* **1997**, *62*, 6974-6977

14) Proposed Mechanism:

